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Planning Board Forecasts Big Post-War Airline Growth

Routes Into Washington Proposed for UAL, TWA

By ERIC BRAMLEY

ASSERTING that it would appear to be sound policy to allow the three transcontinental airlines equal access to the nation's capital, CAB Examiners J. Francis Reilly and Vincent L. Gingerich on Nov. 18 urged the Civil Aeronautics Board to grant United Air Lines and TWA direct routes into Washington.

In a proposed report, the examiners said that United should be permitted to transport mail, passengers and express from Toledo to Washington, while TWA should operate Dayton-Columbus-Wheeling-Washington.

The certificates should contain a provision that the service "may not be inaugurated until such time as the Board shall determine that the national defense requirements have been met and the operation of the certificated air transportation need no longer be deferred," they added.

The benefits which would accrue to the public from the proposed operations, they continued, "far outweigh any incidental adverse effects on existing carriers. In addition, the proposed services seem to fit naturally, geographically and economically, into the pattern of an air transportation system properly adapted to the present and future needs of commerce, the postal service and the national defense."

Explaining why they favored both applications, the examiners said: "Since the record shows that the transcontinental routes of United and TWA are producing approximately the same amount of Washington traffic, the granting of one of the applications to the exclusion of the other would give the favored carrier a decided competitive advantage over the other. At the present time United and TWA have an equal opportunity to share in the Washington traffic because both are represented by PCA, which is not interested and probably should

(Turn to page 42)

Recommends Super Agency For Transport

By ROBERT H. WOOD

"TREMENDOUS acceleration" of air transportation after the war, including extension of feeder services, airports, airway aids, and flying of all first class mail wherever time is saved, are forecast by the National Resources Planning Board in a report submitted to Congress by President Roosevelt.

Recommending a National Transportation Agency to coordinate all peace-time transport, the Board also proposes ambitious programs for transport consolidation, terminal unification and reconstruction, coordination of various media, and encouragement of full development of new forms of transportation.

"Though a billion dollars a year is spent by the Federal government in the provision of transportation facilities, there is no machinery for coordinating this activity to the end of providing the most efficient transport system best adjusted to the needs of the nation," the report says. "Integration of planning and development is essential to an orderly guidance of the Federal government's investment program."

The report, originally drawn up by a special committee

(Turn to page 20)

The Era Opens

...R freight is taking form these days on many wide ...s. The Army's air cargo ...s have been well publi..., but the more significant ...range developments for future are the brainchil... of the Board of Economic ...fare and the Defense Sup... Corporation.

...no way should the mag...nt job of transporting ... supplies by air to the ...at fronts be under-esti...d or under-valued, but in ...ong run this is a more ...us utilization of the air... for military purposes. ... is of specific interest for ...war commercial develop... is the loading of the re...g military planes with materials, minerals and ... products vital to our ...my.

...olden times adventurous ...g men embarked on jour... to distant lands and ...ds, returning with rare ..., metals, jewels and other ...ous products. What is ...ning today is no less ro...c or dramatic, for from ...arts of the world cargo ...anes are flying back to United States with their ...ified and valuable loads. ...rough the efforts of the ...d of Economic Warfare ... winged vehicles are re...g laden with tin, balsa ..., bristles, tungsten, silk ...platinum. The quantities

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T. P. Wright Received by King George

T. P. Wright, deputy director, aircraft production division, WPB, was received by King George VI at Buckingham Palace Oct. 28, according to press reports from London. With members of a group of U. S. aeronautical experts, which he headed, Wright later visited several plants of aircraft manufacturers in England, examining British production methods. Included in this tour was a stop at the A. V. Roe Co., Ltd. with a look at techniques used in turning out the Lancaster bomber.

Included in the American group with Wright were W. K. Ebel, vice president, Glenn L. Martin Co.; A. Hershoff, the Chrysler Corp.; G. Johnson, president, Boeing Aircraft Co.; I. M. Laddon, vice president, Consolidated Aircraft Corp.; Charles Marcus, Bendix Aviation Corp.; S. A. Stewart, Hamilton Standard Propeller division of United Aircraft Corp.; J. Carlton Ward, Fairchild Engine and Airplane Corp., and G. E. Welty, Aluminum Company of America.

It was learned from press reports from London that Wright had been elected an honorary fellow of the Royal Aeronautical Society. This honor makes Wright one of only four Americans to receive this distinction, and one of only 15 of the Society's membership of 3,000 to be selected.

Army-Navy Bulletins

Winston Appointed: Lieut. Robert A. Winston, U.S.N., has been assigned as Aviation Assistant to the Director of Public Relations, Navy Dept. announces. Winston will be available for any cooperation desired in the preparation of material in the general field of Naval Aviation.

Carriers Building: Thirteen large aircraft carriers are now under construction in the U. S., which are "designed to carry the fight to the enemy," according to statements made in Boston recently by Capt. Leland P. Lovette, Navy's director of public relations, in press reports.

Naval Classes: Navy Dept. reports naval and air officers from Latin American countries are making good progress in the special course in advanced aviation technique which the Navy provides at the Naval Air Station in Corpus Christi, Texas. First class will graduate in December, and classes will be changed periodically thereafter.

Farthing Reassigned: Brig. Gen. William E. Farthing, AAF, took command Nov. 10 of the New Jersey and New York Air Service Port Area, with headquarters at Newark airport, according to press reports. Farthing was formerly in command of Hickham Field, Hawaii. His present assignment makes him responsible for what is said to be a new arrangement for handling AAF supplies. Col. Ralph B. Walker, in charge of this area since July 1, continues under Farthing.

40-Mile Ride on Plane Wing Climaxes Rick's Rescue

The Rickenbacker luck held good, even on Friday the 13th.

On Friday, Nov. 13, somewhere in the Pacific, Lieut. W. F. Eadie, U.S.N., and Aviation Radioman L. H. Boutte landed their Vought-Sikorsky "Kingfisher," a two-place observation-scout plane, on the water beside a rubber raft and rescued Capt. Eddie Rickenbacker and two of his companions.

Capt. Rickenbacker, who had been missing since Oct. 23, was on a special mission for the Secretary of War, inspecting aviation facilities in the Southwest Pacific.

The Navy airmen squeezed Col. Hans C. Adamson into the narrow cockpit, lashed Capt. Rickenbacker and Private John F. Bartek to the wings, and taxied along the surface of the sea 40 miles to their base. (Inasmuch as the "Kingfisher" is generally released by catapult, its "base" was probably a U. S. warship).

The War Department announcement stated that the landing, in medium-sized swells, was made with the aid of flares, indicating that the difficult rescue took place at night, or in poor light.

On Nov. 17, the War Dept. said it had been advised by the Navy that Capt. Rickenbacker, "although he still requires at least two weeks of hospitalization, has already expressed the desire to complete the mission to which he was assigned by the Secretary of War."

The first ray of hope that Capt. Rickenbacker and other members of the party might be alive came Nov. 12 when it was announced that Capt. William T. Cherry Jr., pilot of the Rickenbacker plane, was rescued.

Three other crew members were located by a Navy Catalina flying boat ashore on a small South Pacific island. One crew member, injured in the forced landing, died and was buried at sea.

A Plane Like This Found Rickenbacker

He Rode the Wing of a Vought-Sikorsky "Kingfisher"

The Press Hails Rick

Washington Daily News.

STILL THE ACE

Washington Times-Herald.

Washington Post.

Canada Will Build 4,800 Planes in 1942, Howe Says

Canada, which produced less than 100 airplanes in 1939, will have an output of approximately 4,800 planes for the year of 1942, according to C. D. Howe, Canadian Minister of Munitions and Supply.

Howe revealed this production figure in Washington on Nov. 16, the day he attended the first meeting of the joint United States, Canadian, British Supply Commission, of which Canada has just become a member.

Canada is now producing planes at an approximate rate of 400 a month, Howe said. To date, Canadian factories have been able to meet their own demands for trainer ships and to export a few. Plans now are to convert to bomber production, which will lower the actual number of ships produced in 1943, due to the increased number of man-hours required, Howe explained.

During 1942, $209,000,000 of the total war expenditure of $2,500,000,000 will be spent on building planes, while in 1943, $385,000,000 of the total $3,500,000,000 is expected to be put into aviation.

Nine types of airplanes are being constructed in Canada. In the trainer class two American designs are being built, Harvard intermediate trainer and Fairchild primary trainer. The only American designed fighter being constructed is the Consolidated PBY boat for reconnaissance, although they are tooling up to produce the Curtiss Wright Hell Diver. In addition Canada is building the British Lancaster Bomber, as well as light bomber, night bomber and reconnaissance de Havilland Mosquitos.

Canada is entirely dependent on the United States for engines for these ships as they produce no engines and have received none from England since early in the war. However, Mr. Howe told reporters his country is producing 40% of all the aluminum produced on this continent and is almost the sole nickel supplier among the Allied Nations.

Asked if the Mosquito had proven successful in combat, he replied that it had, and said the molded plywood of which it is built has been "standing up" remarkably well.

XUM

Bulletins

Chamber

The board of governors of the Aeronautical Chamber of Commerce on Nov. 20 decided to leave the confused organization "status quo" until mid-January in order to give the reorganizers more time to reach agreement on one of a number of sets of proposals now under study.

The east coast Aircraft War Production Council will meet Dec. 14 to consider the proposals. Meantime the annual Chamber meeting has been postponed to January, probably Jan. 22. Reactions to the Chamber muddle range from "hopeless" to outright optimism.

Merger

The board of directors of Mid-Continent Airlines, Inc., has accepted the offer of a merger, through an exchange of stock, made by the board of directors of Northwest Airlines, Inc. In due course stockholders of both companies will be asked to ratify the proposal, after which it must go to CAB for approval.

Nelson Cites AWPC as Example of Unit for Exchanging Data

Donald Nelson told Senators at a special hearing on Nov. 18 that Sen. Kilgore's proposal to establish an Office of Technological Mobilization would accomplish on a nation-wide scale what has been brought about within the aircraft industry by the two Aircraft War Production Councils—namely, an interchange of information for mutual benefits.

Stressing "the tremendous need for all-out technological mobilization," Nelson enthusiastically endorsed the Kilgore bill and recommended that the authorization for the proposed agency be raised from $200,000,000 to $500,000,000.

There is general agreement that the function of the new Office should be to coordinate, stimulate, and facilitate present efforts, rather than to replace them. The Office would act as an umpire and direct the efforts of present government agencies such as the CAA, Bureau of Mines, NACA, etc. "In the existing agencies," Nelson said, "there is a great deal of latent ability which has not been fully utilized. Coordination, assignment of projects, and umpiring to see that such latent abilities are utilized" could be accomplished by the new over-all technological Office.

Congressmen and Senators claim that the new Office would give "the little fellow with a new idea" his chance to contribute to the war effort.

AAF Opens First School for Air Transport Officers

A school for training officers in the principles and operational practices of air transportation has been established in New York City by the Air Transport Command of the Army Air Forces, with the cooperation of five airlines.

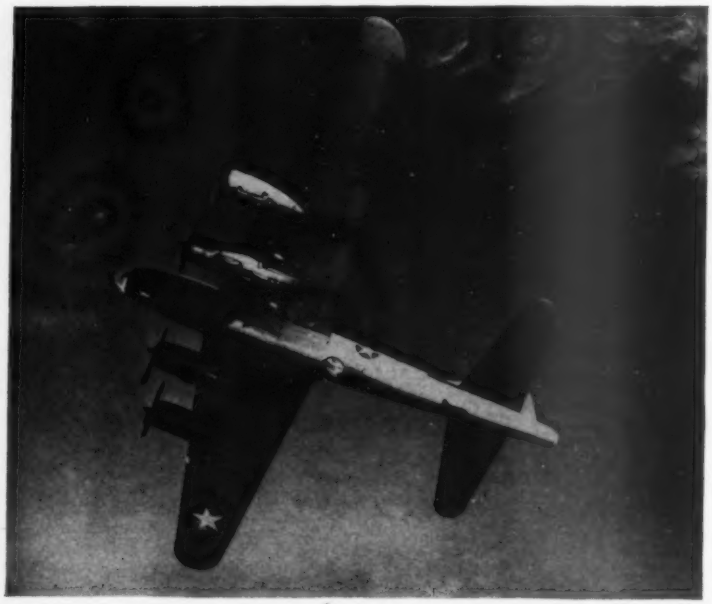
The first class of 65 officers has already been graduated from the Air Transportation Officers School, and have been assigned to route points throughout the world, the greater majority to overseas stations, the War Dept. said. A second class will start the 4-week course early in November. Candidates for the school are chosen from among graduates of the Army Air Forces Officer Candidate School at Miami Beach, Florida.

Five civil airlines are cooperating with the Air Forces in carrying out a comprehensive program of instruction in the principles of air transport: loading cargo, passengers, and mail; elements of flight, how to fuel and service planes, and other important functions of air transportation officers. Headquarters and classrooms of the school, the first of its kind, are maintained in the New York Athletic Club, New York City, New York.

In charge of the new school is First Lieutenant Loring Pickering, Jr., Air Corps, of the Air Transport Command. Instruction at the school is given by a civilian staff headed by Thomas Conley, of American Airlines. Other commercial air lines cooperating by contributing instructors or equipment are: Transcontinental and Western Air, Inc., United Air Lines, Eastern Air Lines, and Colonial Airlines.

Operating in cooperation with the commercial airlines working out of La Guardia Field, New York City, the new school gives practical instruction in flight clearance, meteorology, dispatching, traffic procedure, load computation, operations, and similar subjects. Flights also are made to various Air Service Command depots in the East to study actual loading and shipping problems. During the last half-week of the course, the student officers are assigned to work in branch offices of the commercial airlines at La-Guardia Field.

Officer students in the school come from the ranks, and receive their basic military training as enlisted men before completing the 13-week course at the Officer Candidate School at Miami Beach, Florida. Of the first class graduated from the Air Transportation Officers School, none had previous air transport experience. The average age was 23, and civilian occupations represented include: dairy farming, law, journalism, public relations, teaching, and radio.



Japs Eye View: "This is the last sight many a Jap and German has seen," Boeing Aircraft Co. says in releasing this latest and striking view of the B-17F, the fighting bomber. "Flying up under the Fortress was a favorite trick of the enemy until he learned that the ball turret was armed with two 50-caliber machine guns . . ."

Nelson Predicts Large Increase In Plane Outp

Centralization of control for nation's tremendous aircraft duction program in one civ with his own advisory board working committees, was annou by Donald Nelson in his press ference Nov. 19.

Nelson said monthly unit pro tion will be double present rate next November and that he "ho 1943 plane output will be do that of this year. He expressed belief that aircraft will be a 40 billion dollar industry with year. As such, it deserves "spe treatment," he said.

As was done in the case of ru production, Nelson has vested responsibility for airplane ma facturing in one man, Charle Wilson, WPB vice chairman. W will have other duties, however he will have separate aviation

The WPB Aircraft Produ Division will lose its identity most of its staff will move to new Pentagon Building on the ginia side of the Potomac. will probably be on Army or payrolls. Some will resign the change is effective Dec. was indicated. Extent of con sioning has not been fully d mined.

Nelson told newsmen that confident that by proper coor tion and planning, and perhaps construction of new facilities, craft output in 1943 can be "gr increased."

Much of the talk about mate shortages has referred not to materials, but to the complex of manufacturing and transpo the thousands of different items go into a bomber, for instance that all are at the plant the mo they are needed, Nelson said.

Refusing to quote figures, WPB Chairman nevertheless clared aircraft must be increase meet "new goals." Monthly rates will be "more than double this time next year," he said.

According to official source Washington as this story wen press, the policy making Air Production Board, with Wilso its powerful chairman, will ha members: Rear Admiral Ralp Davison, Assistant Chief of the reau of Aeronautics of the N Maj. Gen. Oliver P. Echols, manding general of the Ma Command, Army Air Forces; old E. Talbott, now director WPB's Aircraft Production Div

On the Production Control C mittee it is expected that the lowing will be assigned: Theo P. Wright, former vice presiden Curtiss-Wright Corp., and known production specialist, chairman; Rear Admiral E. M. P Jr., Director of Materiel for Bureau of Aeronautics; Brig. Bennett E. Meyers, Chief of Sta the Army Air Forces Materiel C mand. Mr. Wright may be on payroll of one of the services.

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XUM

"HELL ON WHEELS"

THAT'S OUR DISH

ARMY NAVY

Aircraft Men know the reason for this at our plant

WHEN you're under fire, you can't limit a ship to the designer's ideal . . . a tactical mission or split-second combat may create conditions beyond the foreseen. An alarm for a sudden take-off—or a critical landing on whatever is below can mean "hell on wheels" . . . and Hayes Wheels and Expander Tube Brakes are facing this in line of duty. And taking it. Performance reports prove it.

Why?—because for Hayes equipment, "flying" starts way back in the factory. It goes through the design rooms, the test lab, the precision manufacture—all developed in step with aircraft advances through long years of civil and military use. (Every Expander Tube brake in use in the United States is a Hayes product—Hollerith designed and improved.) So when these wheels and brakes roll onto the flying fields of the world, they are *veterans*.

Representatives—Western: Airsupply Co., 5959 W. 3d Street, Los Angeles; Eastern: L. Henry Reisner, Hagerstown, Md.
Illustration—Boeing B-17, "Flying Fortresses" with Hayes wheels and brakes

HAYES AIRCRAFT WHEELS AND BRAKES ... —

HAYES INDUSTRIES, INC. Home Office: JACKSON, MICHIGAN, U. S. A.

Transport Plane Uses 'Limitless'—Lovet

Won't Replace Surface Vessels 'For Some Time'

DESCRIBING possibilities of the transport plane as "limitless," Robert A. Lovett, Assistant Secretary of War for Air, reveals the Army plans ultimately to be receiving about one transport for every two multi-engine combat planes.

Lovett

Although transport aircraft are a vital member of the combat team, they will not "for some time to come" replace surface vessels, and therefore "for the present and the next few years we must do everything we can to multiply the number of transports of existing types and the much larger ones about to go into production."

Thus, this high official served due warning to the public not to expect miracles from even the nation's foremost shipbuilding experts, Henry J. Kaiser and Andrew Higgins.

The Army's Air Transport Command, already operating all over the globe, is actually representative of "only a small fraction of the amount of air transportation we shall be operating by this time next year."

Gliders are highly specialized and at this time do not appear to add much to cargo flying, Mr. Lovett believes.

These expressions were made public by the Assistant Secretary in an address entitled "Airplanes for Men and Freight in Wartime," given Nov. 10 before the Academy of Political Science in New York City. The text follows:

Air transports, or cargo planes, are vital members of the combat team of our Army. They are multi-purpose planes of our balanced Air Force, serving with both the Air Transport Command and with the Troop Carrier Command. Our transport planes are classified as "tactical" and are called "service-combat planes," which indicates their dual function, as compared with the fighter or bomber, which is a single purpose plane.

Transport planes are as vital to an air force as motorized equipment is to an Army Divivsion. This fact, plus heavy shipping losses and the desire to find some quick solution of the problems thus raised, have fostered wild claims for air carriers and have, unfortunately, led to much loose talk, false hopes and misrepresentation of the transport plane's proper sphere and its possibilities. In the time available to me today I shall try to state the functions of military air transports, and the limitations of those functions, with as much impartiality as is possible from an ardent believer in air power and the future of aircraft.

Our transport planes are, as I have said multi-purpose. They are extraordinarily flexible. The plane which is carrying ammunition from a reserve depot to a combat area today, may be carrying paratroops over enemy territory tomorrow. They are specially designed for several uses—they have stiffened floors and wide doors to permit the loading of cargo such as engines, spare parts, supplies, special equipment and the great mass of items that an air force and an army needs. But in addition to this and, in many cases of greater importance, they must carry combat teams in support of ground troops—airborne infantry, parachutists, field pieces, special weapons, etc., which must be taken into the combat theater or over the selected target. Therefore, on analysis, their dual function actually has a single aim which changes in character only as the aircraft itself moves from its work behind the lines into a combat zone. It is obvious that troop carrier squadrons are compelled to develop special techniques; but it is equally apparent that the general problem of handling, maintaining and operating the planes is identical.

No Natural Barrier

Transport planes today present a picture of limitless possibilities within their proper field and of disappointing limitations if they are improperly used. Unlike cargo vessels, whose function is limited by a shore line and whose operation of necessity must require reasonably safe unloading points, the Army transport plane, whether serving as cargo or troop carrier at the moment, has no natural limiting barrier except its own range, and has as its specific duty in certain circumstances the job of bringing needed men or supplies into the battle area itself and either dropping them from the air or landing them on the ground. It is important to bear this essential distinction in mind in order to avoid falling into the trap of comparing airborne cargo planes with seaborne cargo ships. Their functions, their speed, their faults and their virtues are entirely different.

The tactical use of transports is, at this particular time, a matter which unfortunately we cannot discuss with frankness for reasons of military security. We can say, however, that to date we have seen only the beginnings of imaginative employment. Press reports during the past two years have made the use of parachute troops a matter of common knowledge. It is likewise known that transportation of reserves and of supplies by air played an important part in Rommel's Libyan campaign and did much to offset the effects of the Mediterranean blockade set up against him. Such examples are perhaps adequate to point out certain obvious military virtues of the cargo plane.

Praises ATC

But all direct combat uses at present become relatively small compared with the amazing expansion of the use of our transport planes to maintain vital supply lines to our fighting units now engaging the enemy completely around the world. A large portion of the public does not realize that Army Air Forces are meeting the enemy in combat every flying day on nine widely separate fronts all around the world. In this global war the problem of supply and maintenance of weapons as fragile as high-performance aircraft would be quite impossible without the cargo plane and without the system developed by the Air Transport Command, which combines civilian contract carriers for the type of operation for which they are best suited, with military air transport squadrons in combat theaters.

While full details of these operations cannot be given at the present time, it is possible to give you a few figures indicating the scope and character of the operation. At one stage of Rommel's drive into Egypt the rapidity of his advance resulted in the destruction of certain ammunition stores of the United Nations. We were desperately short of anti-tank ammunition, and if the situation had not been corrected, the result would have been disastrous. The Air Transport Command delivered 25,000 pounds of this sorely needed special ammunition from this country to the front in Egypt in 5 days. In no other way could this have been done.

In the month of August (latest fully tabulated figures) Air Transport Command through contract lines and its own perso flew a total of 16,212,560,980 po miles exclusive of the African d sion on which a very large num of airplane miles are flown.

The above figures repre merely a small fraction of amount of air transportation we be operating by this time next y For some time past these planes h been going out loaded with weap and supplies to certain countries coming back with strategic mater and military personnel. In the c of several strategic materials small bulk, a high proportion of amount imported is handled airplane.

Is Supplementary

Dramatic as is the work done the air transport plane, particul in the magnificent pioneering op tions where no other method transportation exists (such as, example, in some of our outpos the North, the routes to the Mi and Far East, and the amazing done against great difficulties in ing to make up by air for the ting of the Burma Road) its contribution to the system of tary transportation in this w that of a supplementary exp service, not a substitute fr service.

The air carrier is today, and doubtedly will be increasingly indispensable part of any mil establishment. It has the ease virtues of speed, flexibility, mul uses and elusiveness. It is the existing method of getting es supplies into some parts of world—not just getting them time, but getting them in Its very importance in such op tions has misled large sections public into having false hopes into the belief that air transpo tion offers a quick and easy so to the logistic problems of m war. It very definitely does this. It is, and will be for pe years, an absolutely neces highly specialized but comple tary part of a transport syste war.

Cities Case

For some time to come, tra planes cannot, and will not, the place of ships. There is, in no good reason why they There is no need for us to g detail as to cost per ton mile, sumption of fuel in relation to and range and all the other sta which have importance in time greater than they enjoy war where necessity, rather cost, rules. I believe the functi cargo planes and cargo ships rather simply set forth by a hy thetical case.

Let us suppose that our pro is to move 100,000 long tons of plies per month to Australia present wartime conditions. many planes of existing 4-e cargo type will it take? How

(Turn to page 12)

The CG-4: This 15-man troop glider is now in production at the Kansas plant of Boeing Airplane Co. Assistant Secretary of War Lovett states that gliders are highly specialized and at this time do not appear to add much to cargo flying.

Ryan Manifolds *Fight* on every front

The specially built exhaust systems of the Douglas A-20 Havoc and Boston attack bombers are one of the vital factors in their combat effectiveness and high performance. In every air battle the A-20s have shown superior striking power and ruggedness under fire. Contributing to the deadly efficiency of these remarkable planes, Ryan builds the exhaust systems that control the gas and heat of their mighty engines. Similar Ryan manifold systems are standard equipment on scores of other United Nations combat and cargo planes now fighting on every front.

Exhaust Systems Manufacturing Division

RYAN AERONAUTICAL COMPANY, SAN DIEGO, CALIF.

Member, Aircraft War Production Council, Inc.

Buy, buy War Bonds or
Bye, bye Democracy

RELY ON Ryan

A NAME OF MILITARY SIGNIFICANCE

1922 A Leader in Air Progress for Twenty Years 1942

Wings over the WORLD

"Their Sufferings Will Not Have Been in Vain..."

COUNT CARLO SFORZA, former ITALIAN FOREIGN MINISTER

What kind of post-war world are we fighting to create?

Pan American has presented answers to this question by such leaders of thought as Dr. John Dewey, Dr. Hu Shih and the Archbishop of Canterbury. Here Count Carlo Sforza, former Italian Foreign Minister and now leader of the FREE ITALIANS throughout the world, tells you what he sees—for the future.

THESE ARE TIMES when certain problems, once faced, are rapidly solved. During two thousand years, philosophers asserted that slavery was a "law of nature"; and yet more was done towards its abolition in the half-century around the American Civil War than in the whole preceding Christian era.

That is why I declared, in a recent speech at Montevideo, that the first duty of a free Italy will be "*ardent support of an organized world with no more place for the anarchical independence of the nationalistic States.*" I was not surprised when this statement met with cheers from Italians who had assembled to meet me from all parts of Latin America.

What is true for Italy, which has bitterly learned the folly of aggressive wars, is equally true for America. No American should forget that in the coming world even the Ocean will be no more than a big river; and that, if only for that, the era of isolation is gone forever. Those who cannot see this are like certain *dannati* in Dante's *Inferno*—people walking eternally with their heads turned backwards.

The highest duty of the present generation of Americans is to fight in order to make impossible a repetition of the Nazi-Fascist plot against peace. This American duty was foreseen by the Declaration of Independence when it stated in 1776:"...*that whenever any form of Government becomes destructive* [*of life, liberty, and the pursuit of happiness*] *it is the right of the People to alter or to abolish it.*" In Jefferson's mind, "*right*" meant "*duty*"!

War always means suffering. But our sufferings in this "toughest of all wars" will not have been in vain since we are beginning to learn:—

(a) INDIVIDUALLY: that Liberty is a right which must be won anew by the common people in each generation;

(b) NATIONALLY: that the previous complete independence of Nations must cease. They must submit to a superior international law which will make it impossible for peaceful nations to be again at the mercy of adventurers. Never again must it be possible for a Nation, having first destroyed Freedom at home, to prepare satanic aggression behind its closed frontiers.

We must resolve that frontiers will no longer mean what they meant up until 1939. I foresee a Peace Conference at which we might agree to draw in frontiers very lightly—with a pencil and not in indelible ink.

Sforza

THE DAY THAT VICTORY is earned by the United Nations, aviation must be ready to demonstrate that it is a great *con*structive, as well as a great *de*structive, force.

Air transport travel costs will, we believe, be brought within the reach of common men everywhere.

Two weeks' vacation in Italy? Certainly, since Rome will be only 16 hours from New York by air. Round-the-world air cruises in two weeks? Nothing will prevent them when Victory comes except the barriers of habit and disbelief.

When peace comes, Pan American looks forward to playing its part, through technological research as well as with trained personnel and flight equipment, in providing widespread distribution of the world's culture, science and goods.

Today, of course, everything that we can offer—120 million miles of over-ocean flight experience, trained personnel and service to over 60 foreign countries and colonies—is at work for the government and military services of the United States.

PAN AMERICAN WORLD AIRWAYS SYSTEM

PAN AMERICAN CLIPPERS

XUM

War Frauds Unit Hits Parts Firms

Although the War Frauds Unit of the Department of Justice now has about 600 active cases on its dockets against both labor and management, none directly affects an aircraft manufacturer, T. C. Clark, chief of the unit, tells AMERICAN AVIATION. So far, 854 cases have been certified to the unit, and 29 have been turned over to grand juries. Thirty-five indictments have been issued.

Pending cases do include several small aircraft parts makers, with several of these in the Detroit area, Clark said. A number are operating through brokerage firms and are charging excessive fees against contract costs, he added.

Three men, two of them Lockheed Aircraft Corp. employes, have been indicted for "conspiracy to defraud the U. S. in connection with the construction of airplanes." No date has yet been set for their trial. One was receiving excessive "pay-offs" on the side, it was stated.

Most war frauds, Clark says, are one of three types: (1) Non-compliance with contract specifications; (2) overcharging on contracts; (3) "kick-backs," including one case in which labor organizers in a closed-shop plant had earned $100,000 in a short time by charging members $2 out of each weekly pay check for keeping them employed.

Army-Navy Decorations

Tinker Honored: War Dept. announces that the Distinguished Service Medal was awarded posthumously to Maj. Gen. Clarence L. Tinker, and presented Nov. 10 to his widow by Lieut. Gen. Henry H. Arnold, Commanding General, AAF. Tinker was cited "for exceptionally meritorious service" in anticipating a Japanese raid on Midway Island. He was lost at sea during the Midway Battle, June 7, 1942.

McCuskey Honored: Lieut., j.g., Elbert S. McCuskey, U. S. N. R., 27, has been awarded the Navy Cross with Gold Star, equivalent of a second Navy Cross, "for heroism in the Coral Sea and Midway Battles, and during an attack upon Tulagi Harbor," Navy Dept. reveals. For these and previous citations, McCuskey is credited with shooting down or damaging 10 Japanese planes.

Kimes Receives Award: Navy Dept. announces that Lieut. Col. Ira L. Kimes, U. S. M. C., 43, was awarded the Distinguished Service Medal, following a battalion parade and review in his honor at Brown Field, Marine Barracks, Quantico, Va., Nov. 7. Kimes was in command of Marine Corps aircraft during the Battle of Midway.

Authorized Decorations: War Dept. lists authorized decorations which it awards as (1) Medal of Honor; (2) Distinguished Service Cross; (3) Distinguished Service Medal; (4) Silver Star; (5) Purple Heart; (6) Soldier's Medal; (7) Distinguished Flying Cross; (8) Air Medal, and (9) Oak Leaf Cluster.

War Agencies Review

"THE INCREASING DEMANDS OF THE ARMED FORCES require that large numbers of men in essential activities who are liable for service be released for induction into the armed services" Selective Service System States in Local Board Release No. 158: "It is important that they be released and replaced in an orderly manner, giving consideration to their qualifications and the time necessary to secure or train replacements. This is particularly true of those persons engaged in management, engineering, planning, superintendence, occupations requiring essentials skills, and those engaged in the training of others."

Describing the plan "devised to provide an improvement in the means through which the Selective Service System may determine when and how registrants in essential activities may be replaced," the release makes public information on "Manning Tables or Inventories." No change is made from the voluntary basis upon which local boards may adopt such suggestions.

●

OCCUPATIONAL BULLETINS have been issued for more types of work certified by War Manpower Commission as essential activities. These include: No. 35, covering classifications for rubber products activities, an amendment to prior release No. 115; No. 36, for production of apparel for the armed forces and work clothing; No. 37, featuring occupations in production of finished lumber products, including wooden parts of aircraft; No. 38, for production of transportation equipment including trucks, buses, motorcycles, bicycles, etc.: No. 39, for production of textiles, comprising spinning and weaving of silk and nylon for parachutes and powder bags, of canvas for many war purposes.

A clarification of the status of registrants having a 3B Classification has been sent to local boards in war production centers. This states, in part: "Registrants entitled to classification in 3B must have collateral dependents, or must have wives, or wives and children, or children with whom they are maintaining a bona-fide family relationship, and at the same time must be employed in an essential activity.

"It is not necessary to qualify as a 'necessary man' in order to be entitled to 3B classification. Thus a helper, a janitor, a handy man or any other type of laborer within an essential activity and having dependents as indicated above, as contrasted with a 'necessary' man, is entitled to 3B classification, so long as dependency exists and he continues to fill that occupation."

●

ACTING AT REQUEST OF WAR AND NAVY DEPARTMENTS and Maritime Commission, Labor Secretary Perkins, under authority of the Walsh-Healey Public Contracts Act, has dropped the age requirement to permit employment by war plants of girls 16 and 17 years old.

Conditions under which the order became effective include: no girl under 18 may be employed for more than 8 hours in any one day, or between the hours of 10 P.M. and 6 A.M.; no girl under 18 shall be employed in any operation or occupation hazardous in nature or dangerous to health; specific luncheon periods of at least 30 minutes must be granted, and girls must receive at least the minimum hourly rate set by the Fair Labor Standards Act or the Walsh-Healey Act.

●

MINIMUM WAGE RATES for employes of the Aviation Textile Products Manufacturing Industry have been set in an order signed by the Secretary of Labor. Definition of the industry states that the order covers workers "engaged in the manufacture of articles, other than apparel, primarily of fabric for use in connection with the aviation industry, including, but without limitation, parachutes of all types, parachute packs, parachute harnesses, safety belts, aerial delivery containers made primarily from fabrics, tow targets and wind direction indicators of the wind-sock type, *provided however*, that the manufacture of canvas and duck articles for ground use, such as signalling panels, is not included."

Minimum wage was set at 55¢ an hour, or $22 a week of 40 hours, on either a time or piecework basis, for the States of California, Oregon and Washington, and 47½¢ an hour, or $19 a 40-hour week, for the remaining 45 states and the District of Columbia. Workers who are learners may be employed at the rate of 40¢ an hour, or $16 a week, during the first two weeks of their employment, and at the rate of 45¢ an hour, or $18, during the third and fourth weeks.

●

OPA WILL REFRAIN from further extension of its controls over combat planes and other military materials and services under an arrangement just announced. Military items, their subassemblies and parts, which are now exempt from OPA regulations, will in general be left to control by the War and Navy Departments. Materials, subassemblies and parts and finished goods that have close civilian counterparts, which are now under OPA regulations, will in general remain there with special provisions for price adjustments under Procedural Regulation No. 6.

According to the official joint release, the War and the Navy Departments "will use all their powers to control profits and prices on the items exempt from OPA control and left to their jurisdiction. They will exercise such controls by the use of procurement procedures based on experience gained since the war began and by full use of their broad powers to examine and audit production costs and renegotiate contracts."

War plants are warned to determine whether their sales are subject to OPA regulations or are under price control of the Services. It is emphasized that no sales heretofore subject to OPA control have been exempted as a result of the new arrangement.

Supplying Russia

In the 12-month perio ended late in September o early in October, the U. S and Great Britain shipp 3,052 aircraft to Russia, ac cording to Richard K. Law British Under Secretary o Foreign Affairs. He em phasized that this was th number shipped, and not th number delivered. However he added, the great bulk o shipments are reaching thei destinations.

Enlisted Pilots Now Eligible as Flight Office

A new Army regulation, w makes it possible for enlisted p in the AAF (non-commissi grades) to become eligible for pointment as Flight Officers, announced Nov. 12 by the War D

This regulation, authorized Congress on July 8, 1942, "cr the title of Flight Officer, with rank, pay and allowances of W rant Officer (junior grade)." F Officers receive flying pay, an crease of 50% over base pay, acc ing to release.

Although Flight Officers will have a commissioned status, will be "eligible for Second L tenants commissions by selection individual merit after three mon service as Flight Officers." It explained that formerly enlisted who completed a similar cours training were awarded the rank staff sergeant, or retained any hi rank they may have held wi training.

According to announcement, following are eligible for appo ment as Flight Officers: (a) aviation cadet successfully comp ing an aviation cadet course wh qualified to perform the duties member of an air crew, and (b) enlisted man who has successf completed a course of an avia student and who is qualified to form the duties of an air crew m ber.

Regulations also specify that and after Nov. 15, 1942, "no appl tions will be accepted from enli personnel for aviation student tr ing leading to the aeronautical ing of 'pilot.'" However, appl tions received before that date be processed," and effective cl date will become Jan. 1, 1943. Ap cants qualified for training les to a pilot's rating, will have a ch to qualify for aviation cadet train

Shoulder rank insignia of a Fl Officer is similar to that of a W rant Officer, release added, expla ing that it consists of "a bl enameled bar with a latitudinal o ter strip of gold."

Lt. Wiggin Named

Lt. F. W. Wiggin, USNR, is n officer in charge of the Navy-C Flight Instructors School be operated by the Ft. Worth Avia School, Meacham Field, Ft. Wo Texas.

You Cannot See Me–

I am not only invisible –

I am also indivisible –
and universal.

I am all about you –
and even inside of you.

Without me you cannot live.

No one knows how large I am –
yet I am many times larger than the earth.

People know far less about me than they do of land and water.

Yet I am the same to everyone, everywhere: a common denominator in the lives of all living persons.

I make it possible to abolish isolation, to re-shape geography, to erase boundaries, to eliminate the handicaps of distances and the surface barriers that have encumbered "earth-bound generations."

The use of me makes close neighbors of all races all over the globe.

As more people understand and utilize me, they can enjoy an entirely new kind of world.

My world is even more different than the "round" world in comparison to the ancient "flat" world.

People are just beginning to explore my possibilities, yet already I have changed age-old military strategy.

I make possible even greater changes in every phase of human relationship.

No one can hide from me, because I am omnipresent.

I am man's greatest physical challenge and greatest opportunity in all history.

My name is "AIR."

It is not enough simply for "aviators" to comprehend me.

My value is in exact ratio to the number of people, in all walks of life, who capitalize on me. Because I affect every living person everywhere; every government; every creed; every tongue; every industry; every market; every inch of the earth's surface.

You can use me right now, here at the home front, just as our Army and Navy are doing on distant battle fronts. By so doing, you can save time and expedite your contributions to our nation's war effort.

My importance now, as a realm for military maneuvers, is only a hint of how I can benefit everyone, and make possible a much better world.

AMERICAN AIRLINES *Inc.*

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ROUTE OF THE FLAGSHIPS

Advertisement

IN THE DAILY

Super Service

If you could read *American Aviation Daily's* mail from its subscribers we believe you would be impressed with the Washington service it is giving aviation. For doing a bang-up news summary, which is in the post office by 6 o'clock each evening, is not the *Daily's* only accomplishment. The rest of it is to meet the individual demands of airlines, manufacturers, chambers of commerce, libraries and schools scattered from Hindustan to Hawaii. And eight out of ten requests are filled without a penny's extra cost to those subscribers.

Here's a newsreel flashback to show you how the *Daily* is helping its readers:

More than a dozen requests arrive for the National Resources Planning Board's report on future of transportation . . . Scudder, Stevens & Clark, big investment house, thanks us for "sending so promptly" the Eastern Air Lines rate decision of CAB, and now requests American's rate decision, full text . . . Oklahoma City Chamber of Commerce needs location of the 34 district offices of the Specialist Corps . . . Sperry Gyroscope requests WPB's new book describing Controlled Materials Plan . . . An American Airlines research engineer needs a *Daily* of May 28, 1940, with an article therein on cargo.

"We find we do not have a copy of the May 16, 1942, issue of the *Daily* in our files," the master file clerk of McDonnell Aircraft Corp. writes, "so, in order that our records may be complete, will you please furnish us with an additional copy?"

Evans Products Co. orders 150 copies of the *Daily* of Nov. 10.

Writes Vice-President C. C. Thompson of United Air Lines: "Thanks very much for your promptness in sending us the rate decisions of the CAB which we requested in our wire. This will be a great help to our Market & Research Dept., who were anxious for the material." . . . A research librarian of American Airlines requests quotations on copies of the *Daily* from Jan. 1 to 19, back in 1939, "to complete our set."

Consolidated Aircraft Corp. needs NLRB data as quickly as possible . . . National Aviation Corp. is in need of copies of the wage stabilization act . . . A Memphis subscriber wires for Selective Service's Occupational Bulletin 37, mentioned in the preceding day's *Daily*.

A Philadelphia school asks for Executive Order 9250 of Oct. 3, while out in Pasadena the California Institute of Technology seeks WPB's latest list of its executive personnel. Fairchild Engine & Airplane asks if we can obtain the full report of the Labor Dept. on midwest aircraft wage earnings. We can and do.

Braniff Airways asks NWLB Orders 7, 8 and 9.

So it goes, and these are only a few of the errands we performed in a few days. Many requests come in by phone.

(Write for samples: *American Aviation Daily*, American Building, Washington, D. C.)—R. H. W.

Lovett Sees 'Limitless' Transport Uses

(Continued from page 6)

cargo vessels will it take? How much personnel? Will we need tankers? etc. The simple table below gives these answers.

San Francisco to Australia—Distance about 6500 nautical miles

100,000 long tons of supplies a month

	Number	*Crews*	*Fuel*	*Tankers*
Surface Vessels (EC Type)	44	3,200 (including gun crews)	165,000 bbls.	0
Cargo Planes (4-Eng. C-87 Type)	10,022	120,765 (flight crews only)	8,996,614 bbls. (overseas requirement)	85 (large size)

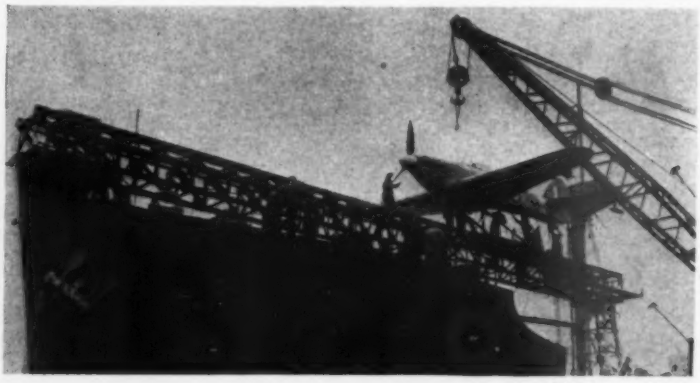
I believe a study of this comparison will indicate some of the absurdities of the recent "air cargo as a cure-all" excitement in the midst of a war in which we will need all the supplies we can get by land, sea, air.

A large army in this day of mechanized warfare requires an amount of heavy guns, ammunition, tanks, motorized equipment and general supplies of a character, weight and bulk which does not lend itself to the limited cubic capacity of air transportation at this time. Moreover, the serious limiting factor in air freighters at present is their fuel capacity and its effect on their payload. This situation is slowly being improved but it will take several years before great improvement on long haul cargo can be expected. A cargo vessel can carry enough fuel to get its load to the destination abroad and return home. At the present time the airplane cannot do this on long flights. Consequently, fuel has to be carried for it and spotted along the way or at its destination so as to enable it to get back home. On one of our principal well established routes of the Air Transport Command, with no very long hop involved, we have to send about one ton of fuel by sea to enable the planes to carry approximately one ton of freight by air.

Giant air transports of the future will probably reduce this fundamental deficiency. Such planes are, however, several years in the future and their safe development in the present state of the art requires growth by tested stages. Therefore, for the present and the next few years, we must do everything we can to multiply the number of transports of existing types and the much larger ones about to go into production. This the Air Forces are doing and our goal is the maximum number possible without too great a reduction of combat planes during the time of limited strategic materials. From an initial rate of about one cargo plane to five multi-engine combat planes we advance in an orderly schedule until we reach a ratio, under present plans, of about one to two.

And now a word about gliders. The glider has certain tactical uses but it should be emphasized that they are very highly specialized. Because of the fact that they can be built with lighter wing loadings than are generally used in transport planes, they can land at much slower speeds and, in deed, can get into fields from which no [illegible] take-off could be made. How[ever] where take-offs and landings [can] made from reasonably well prep[ared] fields by well designed cargo p[lanes] with proper overload, the use [of] gliders does not appear to add [much] to cargo operation. The total [load] with which a transport plane [can] take off and fly safely towing [a] glider is naturally less than it [can] carry without a tow. It seems [to] present that the load carried in [the] glider would normally be only [a] little more than enough to [offset] the load left out of the transport [to] enable it to tow the glider. It [has] been estimated by competent [au]thorities that it would, on the [aver]age, require seven or eight [cargo] planes, each towing one or [two] gliders to handle the same total [load] that could be directly carried in [the] similar airplanes without the [com]plications of the trailing gliders [and] their crew. In summary, the [glider] has very special military uses but [at] present in transportation it is a [very] cial expedient for use in [special] situations.

It must be apparent that we [should] not afford to neglect any method [of] transportation. You will not find [in] any competent airman who is [not] an enthusiast about air transportation and who does not look forward to the days of specially designed large air cargo planes. Similarly you will find none who wishes to do air transportation the disservice of claiming something fantastic for it. All of us in the business day in and day out believe that we have only seen small samples of the future of air transportation. Planes now on the drafting boards and in the factories expand the horizon almost indefinitely, and even larger specially designed air carriers will come when design, metallurgy and technique reach the proper stage. This is, we happily, some years off and we must use in the war of today and tomorrow the weapons and means of today and tomorrow while research and experimentation, under the forced draught of war, bring us steadily nearer the magic carpet of the future.



British Press Service.

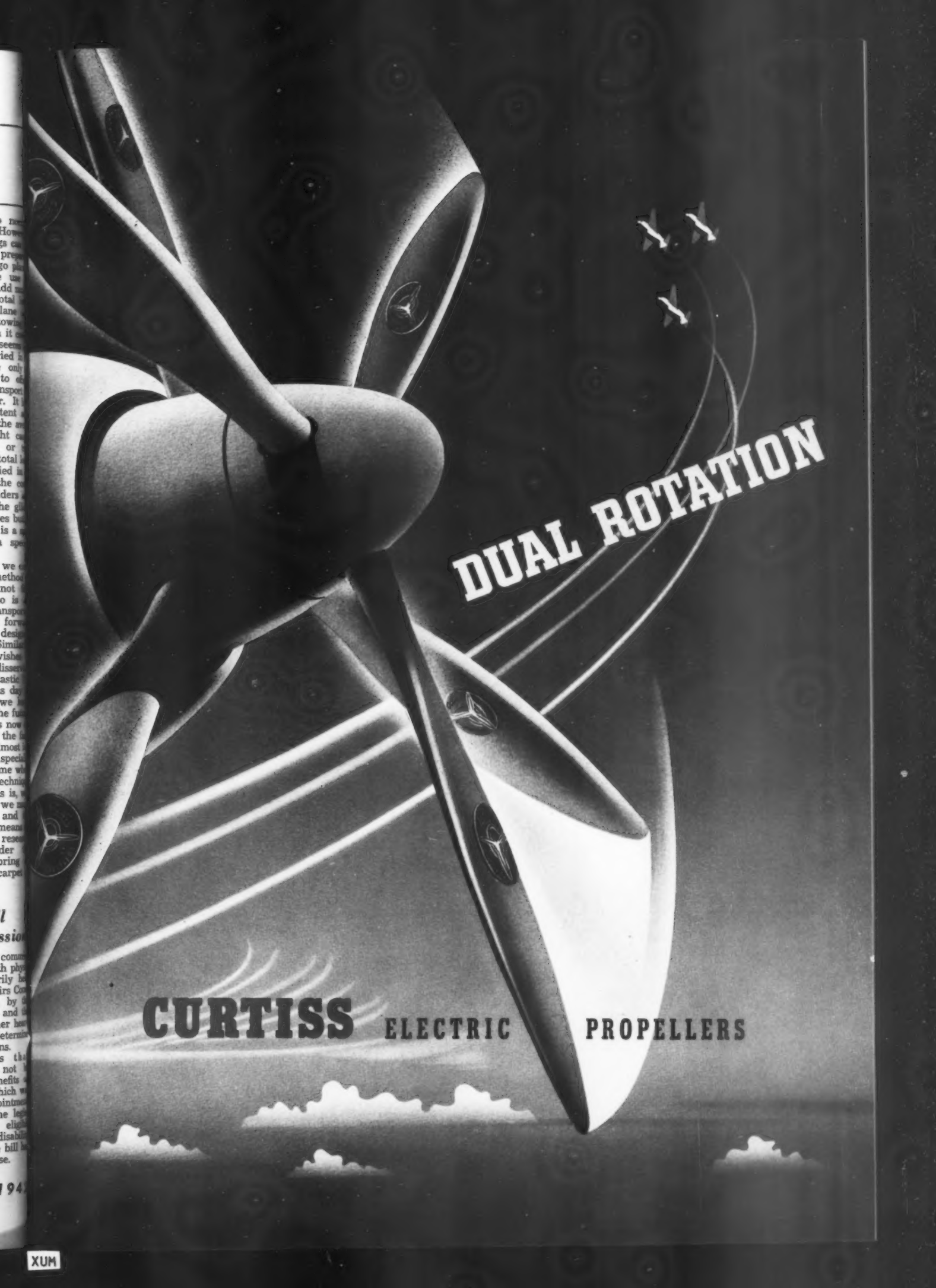
One-Way Trip: A British merchant ship traveling in convoy carries one airplane which is catapulted off when going into action against the enemy. At the end of a combat, the Merchant Service Fighter Unit pilot tries to land on friendly territory. If he is far at sea, he takes to his dinghy and hopes for the best. Photo shows an MSFU Hurricane being placed on the catapult.

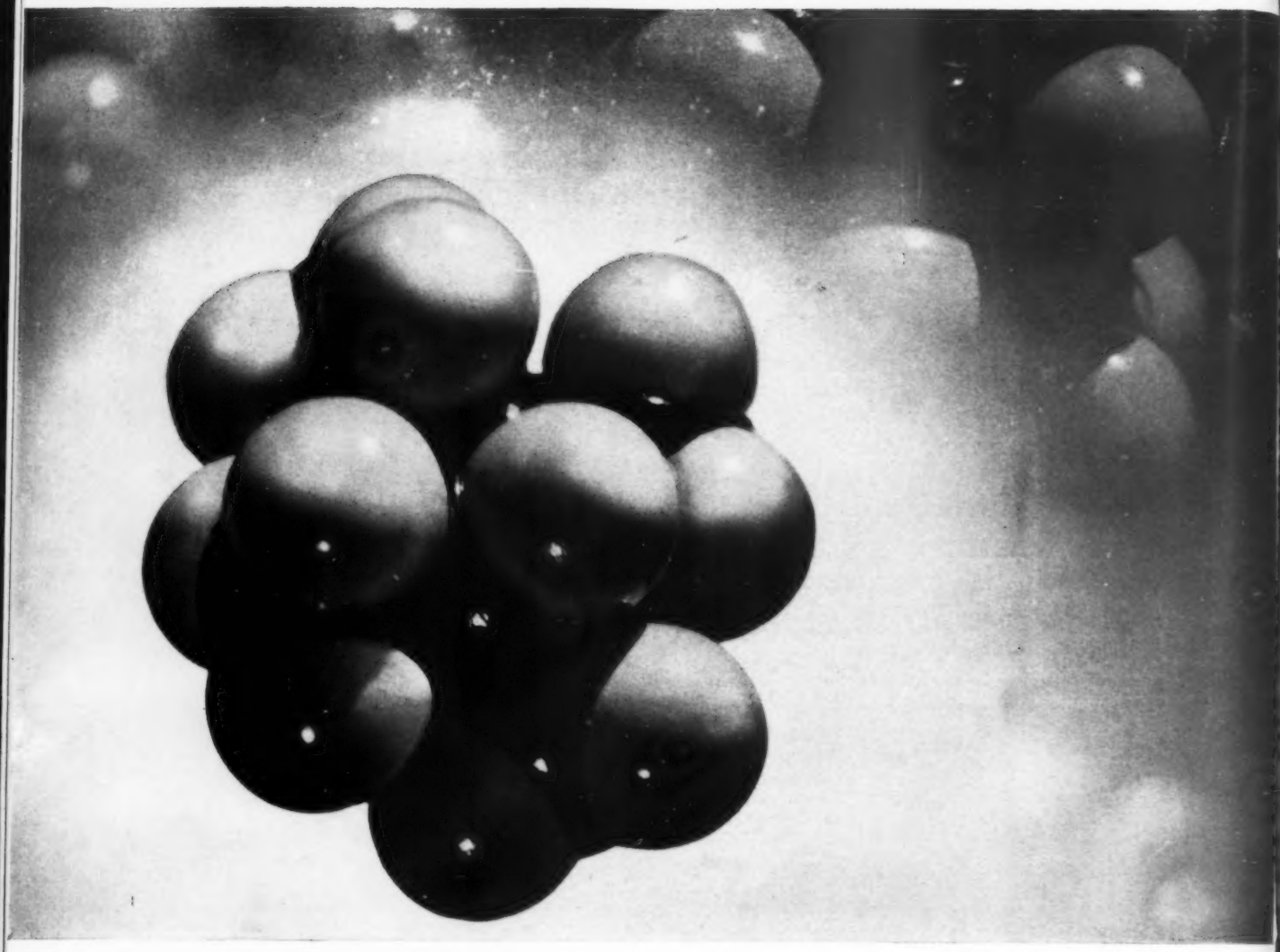
Veterans Stall Bill For Navy Commissio[ns]

Legislation to facilitate commissioning of Naval officers with physical disabilities is temporarily held up in the Senate Naval Affairs Committee by objections filed by the Veterans of Foreign Wars and the American Legion. At further hearings the Committee will determine the validity of the objections.

The legislation provides that officers appointed shall not be eligible for retirement benefits on account of the disability which was suffered at the time of appointment. Officers appointed under the legislation, however, would be eligible for retirement benefits for disability incident to the service. The bill has been approved by the House.

XUM


DUAL ROTATION
CURTISS ELECTRIC PROPELLERS



BUILT-IN TAIL WIND

SHOWN ABOVE is an amazingly effective device for increasing the speed, cruising range and climbing ability of airplanes.

It is a molecule—represented by a chemist's model 100 million times life size—of neo-hexane, one of the modern synthetic products of the petroleum industry that far surpass gasoline as fuel for aviation engines.

The discovery of neo-hexane (known also as 2,2 dimethylbutane) was a triumph of the petroleum industry's peacetime search for more efficient fuels. Long before Pearl Harbor, the American oil industry had discovered and developed processes for manufacturing this and a number of other high octane blending agents so that today we are able to supply all planes of the United Nations with very high octane motor fuel.

The production of aviation gasoline is no longer a matter of simply distilling and cracking crude petroleum. It is a highly complex chemical art—a science of synthesizing special compounds that can be blended into fuels of predetermined characteristics.

Among the chemicals which give our aviation gasoline its high antiknock quality is Ethyl fluid. That is why Ethyl engineers cooperate with the petroleum industry in their search for better aviation fuels. And, since fuels and engines are so closely related in their development and use, we also do all that we can to be helpful in the development of engines which will best utilize these improved fuels.

ETHYL CORPORATION
Chrysler Building, New York City

Manufacturers of Ethyl fluid, used by oil refiners to improve the antiknock quality of aviation gasoline.

Girdler Denies Deceiving FDR

Tom M. Girdler, chairman of the ard of Consolidated Aircraft Corp., n Diego, Cal., and Vultee Air- ft, Inc., Vultee Field Cal., in a re sent to Senator Claude Pepper v. 13, described as "utterly false" tatement made to a Senate com- ttee that Consolidated transferred nes to Fort Worth from its Cali- nia plant to impress the Presi- nt on his recent tour.

Statement was attributed to Har- W. Brown, labor leader, in stifying before a Senate labor sub- mmittee. Girdler said "it is in- nceivable that such statements uld be made by any one sincerely terested in the war effort in which is company is engaged."

His telegram continues: "The mpany did not fly bombers to plant to deceive the President the simple reason that the move- nts of planes in and out of the rport are controlled exclusively by Army. The company has noth- whatever to say about such vements.

"I have it upon authority from my officials that there were no usual movements of planes on the of the President's visit to the rt Worth plant.

"Any statement that manpower is ng wasted at Fort Worth by over- ployment is equally false.

"The Fort Worth aircraft plant th additions under construction destined to be one of the largest the world.

"Thousands of people are now rking at the plant and in order prepare for the greatly accelerated duction program required by the vernment; hundreds of additional rkers are being trained. To re- r to these trainees as 'loafers' is t only wholly untrue but malici- sly misleading.

"The Fort Worth plant of Con- idated Aircraft Corporation is aying an important part in the r effort. We are turning out a rge number of big transport planes ere—the so-called converted work- rse version of the Consolidated iberator B-24 4-motored bomber. addition the plant is used as an portant 'modification' center where anes made elsewhere are brought the Army for certain changes in arts and equipment required to ady the planes for service in dif- rent parts of the world.

"I earnestly request that you in- rporate this telegram in the rec- d of your hearing.

Such statements as those made be- re you yesterday if allowed to tand uncorrected could do great arm to the war effort."

'Scorekeepers'

Each plane that goes to the fleet rom the Naval Air Station, San Diego, Cal., is supplied with a pac- et of 12 decalcomanias of Japan's ising sun insignia, according to Navy Dept. release. These "little ags" are pasted on the plane's uselage each time an enemy air- raft is shot down. It was formerly ecessary to paint them on after combat flights.

Flight Deck Jeeps: Tractors of Hebard and Ford makes are now standard equipment on carriers, this new Navy picture reveals.

Pacific Rangers: Latest Douglas SBD scout bombers are arriving in the Pacific theater. They can enter the fray as dive bombers or, with auxiliary tanks, can range ahead of the carrier on reconnaissance.

Sunset: These fighters have returned to the carrier after scouting operations. Note other fleet units in distance.

Corsair & Sea Gull: Latest photo of the new Vought-Sikorsky F4U Corsair, whose Pratt & Whitney 2000HP engine gives it 400MPH-plus appears on the left. It's one of the Navy's most sensational weapons. On the right is the Ranger-powered Curtiss SO3C Sea Gull, brand-new pontoon scout, easily identified by its turned-up wing-tips.

Official U. S. Navy Photos

Hemphill Urges Diesel-Powered Bombers, Airliners

Use of diesel power in airplanes to meet the threat of enemy bombers similarly powered, which might fly at very high altitudes, was urged by Ralph Hemphill, president of Aero Industries Technical Institute, Los Angeles, Cal., in a recent letter to Henry Kaiser and Howard Hughes of Kaiser-Hughes, Inc.

"A diesel power plant can be designed and built that will revolutionize power for the airliner of the future," Hemphill said in suggesting that Kaiser-Hughes make use of diesel power in their projected giant transport airplanes.

"There is no question as to the efficiency and other advantages of the diesel engine over the gasoline engine for power in the great airliners that you are contemplating," he continued. "For many years we have known that Germany has had in use in their large ships the Junkers Diesel Power Plant, giving them cruising radii that we have never been able to accomplish in this country.

"We have, in my opinion, the best diesel designing engineers in the world here in America. We also have the best facilities. Unless we start to build diesels for our airships in the immediate future, we are liable to discover that one of these days the enemy is coming over with diesel powered bombers flying so high that we cannot reach them. It is no idle imagination; it is very possible."

Air Forces to Open Weather Training Center

An Air Forces Weather Training Center, the first of its kind, will be opened in Grand Rapids, Mich., War Dept. announced Nov. 12. First classes are scheduled to begin soon after the first of the year.

About 60 days are thought necessary to make preparations for occupation. The center will accomodate 5,000 students, with provision for expansion as needed. Commanding Officer is Col. Edward C. Black, Air Corps, formerly commanding officer at Sheppard Field, Wichita Falls, Texas. Weather training will be under the direction of Col. Don McNeal, also Air Corps.

Weather observers, weather teletype maintenance men, weather forecasters, and aviation meteorologists are the types of weather technicians who will be trained at the new school.

OWI Report Available

Office of War Information announces that its plane report *Design and Operation of United States Combat Aircraft*, is now available in printed form, running to 24 pages. Copies can be obtained from OWI's Division of Public Inquiries, Washington, D. C.

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Elections to Shuffle Committees In Congress; Harter, Lee Defeated

By KATHERINE JOHNSEN

THE 1942 elections will bring wide changes next January in line-ups on House and Senate Committees acting on aviation legislation, but no new committee chairmen are involved, a survey by AMERICAN AVIATION reveals.

Dow W. Harter (D., Ohio) and Josh Lee (D., Okla.) were defeated, while Jennings Randolph (D., W. Va.), Melvin Maas (R., Minn.), Clarence Lea (D., Cal.) and Jack Nichols (D., Okla.) were victors. Sen. Pat McCarran (D., Nev.) is not up for re-election until 1944.

Along with Harter, Andrew Edmiston (D., W. Va.) of the *House Military Affairs Committee* will make an exit. Harter at present is second-ranking member of the Committee and chairman of the subcommittee on aviation; Edmiston is fourth-ranking member of the Committee and also a member of the aviation subcommittee.

The Harter subcommittee of the Military Affairs Committee in the past year has battled for higher aircraft priority ratings and made reports highly commending the aviation industry and Army aviation accomplishments.

As a result of the upset on the Democratic line-up of the Military Affairs Committee, however, California's John M. Costello (D), an outstanding member of the Harter subcommittee, will jump from his present position as seventh-ranking member to third. If Chairman Andrew J. May (D), who was re-elected Nov. 3 by Kentucky, carries over into the next Congress his present policy on investigating subcommittees—namely, having separate groups investigate concurrently different phases of the war program, with highest ranking Democrats as chairmen—then Costello is slated for a subcommittee chairmanship. The power of investigating committees is estimated by some to be as great, if not greater, than that of standing committees, because their findings have often made legislation or remedial action inevitable. Overton Brooks (D., La.), also a member of the Harter subcommittee, was re-elected and will jump in 1943 to fourth ranking member of the Military Affairs Committee from his present place as eighth ranking member.

A surprise was the defeat of Oklahoma's Josh Lee (D)—the Senate's non-flying advocate of greater airpower. Last summer, hearings promoted by Lee and Edwin C. Johnson (D., Col.) on air cargo planes, attracted the attention of the nation. Sen. Johnson, however, was re-elected for another six-year term, and will retain his present position as second-ranking Democrat on the *Senate Military Affairs Committee*. Lee was third-ranking Democrat on the committee.

On the *House Naval Affairs Committee*, Chairman Carl Vinson (D., Ga.), who has not had an opponent in 18 years, was re-elected. Vinson—who has never rescinded the stand he took as a member of the board that tried aviation's "Billy" Mitchell, and who remains "unalterably opposed" to any proposal for a separate air force—nevertheless stands as one of Congress's most energetic promoters of Naval Aviation strength. It was Vinson's words in connection with the recent $9,000,000,000 Naval expansion bill which brought home to many Americans the fact that the aircraft carrier and not the battleship is to be the backbone of the modern Navy.

Maas Re-Elected

Ranking Republican on the House Naval Affairs Committee, Melvin Maas (Minn.) is to continue in service. Maas, long an aviation enthusiast and a flying Colonel in the Marines, stands not for a separate air force, but for the merger of all armed forces—Navy, Marines, and Army—into a single fighting unit.

Warren G. Magnuson (D., Wash.) and Lyndon B. Johnson (D., Tex.), both re-elected, will advance to third and fourth rank, respectively, on the House Naval Affairs Committee ladder in January, as a result of other Democratic defeats.

Senate Naval Affairs Committee will maintain its status quo. The only two members up for re-election were successful: Richard B. Russel (D., Ga.) and Allen J. Ellender (D., La.). Ellender, a close personal friend of shipbuilder Andrew J. Higgins.

Considering the field of commercial aviation legislators, Chairman Clarence Lea (D., Cal.) of the *House Interstate and Foreign Commerce Committee*, reputed to be one of the most capable as well as one of the busiest men on Capitol Hill, was successful in the election. Also re-elected is Alfred Bulwinkle (D., N.C.), chairman of the Committee's standing subcommittee on aviation.

Josiah W. Bailey, Senior Senator from North Carolina and Chairman of the *Senate Commerce Committee*, was re-elected for another six-year term. Josh Lee and Prentiss Brown (D., Mich.), both members of the subcommittee on civil aeronautics, however, were defeated. Charles McNary (R) was re-elected by Oregonians. McNary is a member of the civil aeronautics subcommittee, but his position in the Senate as minority leader has occupied him to an extent that he has not been specifically active in aviation legislation.

The *Senate Appropriations Committee* next year will retain its status quo—all of the nine members up for re-election were successful.

Although there were nine or more upsets by the election on the *House Appropriations Committee*, none of these were at the top. Clarence Cannon (D., Mo.), Clifton Woodrum (D., Va.), Louis Ludlow (D., Ind.), Malcolm C. Tarver (D., Ga.), Jed Johnson (D., Okla.), J. Buell Snyder (D., Pa.), Emmet O'Neal (D., Ky.), James Scrugham (D., Nev.), John Taber (R., N. Y.), Richard Wigglesworth (R., Mass.), William P. Lambertson (R., Kans.), and D. Lane Powers (R., N. J.) will all return to Capitol Hill in January.

Okla. Race Close

One of the closest races in the election was run in Oklahoma by Jack Nichols (D), chairman of the *House Select Committee to Investigate Air Accidents*. Nichols' majority is estimated by Democratic headquarters in Washington at between 100 and 200 votes. Although Nichols' opponent had 30 days in which to request a recount, Nichols' election has been accepted as final in Washington. All members of the Nichols Committee up for re-election were successful: Richard Kleberg (D., Tex.), Everett Dirksen (R., Ill.), and Carl Hinshaw (R., Cal.). The remaining member of the committee, Herron Pearson (D., Tenn.) has decided to go back into private law practice and was not a candidate in the last election.

Many welcome the news that Jennings Randolph—one of aviation's most persistent boosters in Congress—has been re-elected. Randolph's margin was small.

Two of the members of the *Senate Special Committee to Investigate the National Defense Program*, headed by Sen. Harry Truman (D., Mo.), were successful in the election, one member was defeated. Carl A. Hatch (D., N. M.) and Ralph H. Ball (R., Minn.) were re-elected; Clyde L. Herring (D., Iowa) was defeated. Ball is a member of the aviation subcommittee.

Election Notes: Defeat of Nebraska's George Norris means that Vermont's Warren R. Austin will be ranking minority member of the Senate Judiciary Committee and should the Republicans gain control in the 1944 elections he will have his choice of chairmanship of either the Judiciary or the Senate Military Affairs Committee. William Rogers, son of the late humorist is to represent California's sixteenth district (Los Angeles), although opponent Leland Ford refused at first to concede his defeat. John M. Coffee (D) from the Boeing district in Washington, was re-elected. James C. Auchincloss (R) was elected by New Jersey's third district now represented by William H. Sutphin, third-ranking Democrat on the House Naval Affairs Committee. Vito Marcantonio was again a successful ALP candidate from New York.

New Kind of Crash for Committee Stud

Congressman Richard Kleberg, the Nichols Committee to Investi... Air Accidents nearly pledged ... committee to an investigation of ... 1942 election during an interch... on the floor of the House the ... day.

Kleberg was attempting to ... vince skeptical Republicans in ... House that the Committee merits ... additional appropriation of $... "This is a matter involving the ... of equipment and men at a ... when the airways are congest... Kleberg told Congressmen. ... listed Committee accomplish... after accomplishment.

Republicans remained antagoni... showed little interest in the Com... tee's accomplishments, but qu... tioned Kleberg about the Com... tee's trip to South America.

Kleberg addressed a Republi... "It cost $1,700 for that trip, if ... gentleman is interested, and I sh... like to tell the gentleman th... would challenge him to procure ... information this committee gave ... its report for $70,000."

"The committee is doing a g... job," the addressed Congress... Harold Knutson (R., Minn.), ... castically replied. "I have o... wanted to visit South America, ... there a vacancy on the Committe...

"No; I think, if the gentlem... will bear with me, the vacan... exists elsewhere. It is not in t... Committee," Kleberg replied.

"Does the committee intend ... investigate the crash of Novem... 3rd?" the Republican questio... gloatingly.

"It does, fully and complete... Kleberg unthinkingly retorted.

Plane Executives May Testify on War Agenci...

Representatives from leading ... craft plants are slated to testify ... fore a subcommittee of the Se... Education and Labor Committee ... legislation providing for comp... re-alignment of war agencies.

The legislation was introduced ... the Senate by Sen. Pepper (D., F... and in the House by Rep. Tolan ... Cal.). Pepper and Tolan ... chairmen of groups investiga... manpower, believe that a f... reaching reorganization is essen... to deal effectively with the nati... growing manpower problem as w... as production and procurement.

Representatives from the follo... ing aviation firms have been as... to discuss the legislation with Co... gressmen and Senators in clo... session: Curtiss-Wright, Gener... Motors, Consolidated, Glenn ... Martin, Douglas, Boeing, Unit... Aircraft, Lockheed, North Amer... can, Chrysler Corp., Sperry Co... Aviation Corp., Ford, Bell Aircra... Bendix Aviation Corp.

Frederick W. Conant, vice-pre... dent in charge of production ... Douglas Aircraft, has alread... appeared.

QUALIFICATIONS FOR GLIDER PILOT TRAINING 1. Men between the ages of 18 to 35 inclusive, holding a currently effective C. A. A. Airman's Certificate, private grade, or higher. 2. Or, holding a C. A. A. Airman's Certificate, private grade or higher, that has lapsed since January 1, 1941. 3. Or, a certified statement showing completion of 200 or more glider flights. 4. Or, if you are a former aviation cadet or aviation student, who has completed at least 50 hours of total flying time, either dual or solo, at any Army, Navy or other service flying school. . . . . *Get in touch with your nearest recruiting office.*

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Celanese Celluloid Corporation, 180 Madison Ave., New York City, a division of Celanese Corporation of America Sole Producer of Celluloid* (cellulose nitrate plastics, film base and dopes) . . . Lumarith* (cellulose acetate plastics, film base, insulating, laminating and transparent packaging material and dopes) . . . Lumarith* E. C. (ethyl cellulose molding materials) . . . . . **Trademarks Reg. U. S. Pat. Off.* *Representatives:* Dayton, Chicago, St. Louis, Detroit, San Francisco, Los Angeles, Washington, D. C., Leominster, Montreal, Toronto.

XUM

Evans Answers Glider Critics; Forecasts Special Tug Planes

"STATEMENTS and claims that I have made for gliders or trailer planes are not nearly as fantastic as the developments which have been made in airplanes themselves," Col. Edward S. Evans, staunch proponent of gliders, told the Air Cargo Association in Los Angeles recently.

Evans, who is president of Evans Products Co., Detroit, and a pioneer aircraft executive, took cognizance of rising criticism which is being heard among aircraft engineers on usefulness and efficiency of gliders.

Col. Evans

Some aviation officials are expressing the opinion that the aerodynamic efficiency of gliders built to date in this country has been below expectations, and that commercial possibilities of gliders have been too glowingly described. Gliders will be valuable in military operations, aircraft manufacturers grant, but a popular trend of thought in the industry is toward standard cargo aircraft, which are certain to undergo important improvements before the end of the war.

Col. Evans, in denying that recent forecasts he has made for gliders have been "opium dreams," as described by his critics, made the point that "never before . . . has more courage and daring been needed for development than is needed today in the young and mushrooming new aircraft industry."

In the early days he was told the life of an airplane could not exceed four years, yet today old Fords built 15 years ago are still going strong in South America, he said. They probably will last 25 or 30 years, he believes. Back in the 20s and 30s we seemed to be reaching the lift limit, cowlings were already streamlined as much as possible, it was said, and there was a limit to speed.

"What happened? We got high-lift wing flaps, variable pitch propellers, better streamlined cowlings, high wing lift sections and, before we knew it, we were carrying double the payload with a 100% increase in speed."

In 1929 engineers told Evans that 50,000-lbs. was the ultimate weight that could be carried by aircraft, while today Grover Loening mentions possibility of a 750,000-lb. craft and Glenn Martin has a design for a plane with a gross loaded weight of 250,000-lbs. Engine development has been phenomenal as well, he said.

"You engineers will probably tell me that theoretically a tow plane will carry only half of its gross load in gliders and then only with a distinct loss in speed," he said.

"Yet, I have figures from experiments made in Poland showing that this theory does not hold good in actual practice and that with assisted take-off, gliders can be put in the air that will carry a greater payload by three to one than can be carried in the tow plane.

"It stands to reason that this can be made to come true with proper development, in view of the fact that the tow plane is restricted in its pay load capacity by the weight of its engines, the fuel for its engines, its crew, and the extremely heavy construction necessary to withstand the torque of its engines. The Germans today are using that same method and also an additional method—that is, rockets in the tail of the tow plane.

10-1 Sliding Ratio

"The gliders can be built from one-fifth to one-third the weight, with a wing loading that would give you a gliding ratio of ten to one as compared to present gliding ratio of a fast airplane of about six to one. Some are less than that. This means that a glider train has to, through its nature, travel more slowly than a tow plane could be made to travel if unattached.

"If you have an airplane with power sufficient to drive it 150 miles an hour, it takes eight times that power to drive it 300 miles an hour. In other words, eight to one. Reversing this, if we have a plane powerful enough to travel 300 miles an hour and we gear it down to travel 150 miles an hour, we get eight times the thrust power to apply to towing of trailer planes or gliders.

"All that I am trying to say is that the art necessary to give us satisfactory trailer plane trains has not been explored sufficiently for anybody to say what can or can't be done, because when we reach what seems to be the limit of what we can do, some good engineer comes along and removes that 'stump'. Engineers naturally work from the obvious but the obvious is not always true.

"There has been too much tendency on the part of all of us, including the Government, airplane manufacturers and even airplane operators, to accept as standard the designs that we have when, in fact, these designs by the time they reach the production stage are already obsolete. Transportation is rapidly taking to the air and the day is not far hence when anywhere from twenty to thirty percent of our freight cargoes are going to be shipped in freight cars of the air. Today the Army, through necessity, is transporting men and material, using converted passenger planes, bombers, etc. as transports.

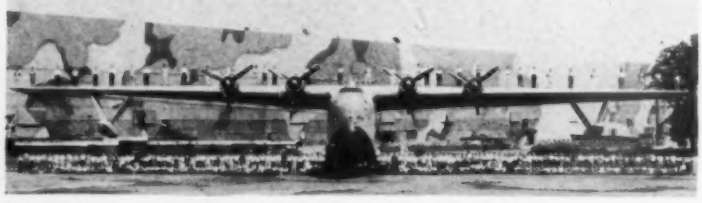
"The C47 can carry a pay load of about four tons at about 160 miles an hour and with a range of 1,500 miles, yet the C87 Consolidated, which is a redesigned B24 bomber, can carry 20,000 pounds or two and a half times the C47 over 300 miles an hour with a range of 4,000 miles. In other words, the C87 can carry four times as much as the C47, and we all know that there are planes already designed with gross loads of from 140,000 pounds up to seaplanes with a gross load of 300,000 pounds. When we come to take these figures and break them down for the purpose of finding how transportation by air compares with that by rail, we find some peculiar facts.

Cost Higher

"One is that if we had 25,000 planes like the C87 we could transport the freight now carried by the United States railroads which use 1,700,000 freight cars to transport it. When we commence to get larger planes these figures again change, always in favor of air. But the costs are much higher than rail because you can haul freight by rail at an average of less than 1¢ a ton mile and first class box car freight and LCL freight costs from 3 to 5¢ a ton mile. To transport freight by air even in large transports will cost 6¢ a ton mile, and this brings us to another step in air transportation for which I am a strong advocate.

"I refer to trailer trains used [illegible] ally as freight cars towed [illegible] specially designed tow planes, [illegible] maybe I should say specially [illegible] designed planes for towing purpo[illegible] because the tow plane should h[illegible] a different center of gravity, a d[illegible] ferent propeller pitch, a differ[illegible] gearing in its power plant and p[illegible] sibly different air foils. We [illegible] never hope to get the efficiency [illegible] operation with trailer planes w[illegible] we use tow planes that were b[illegible] for an entirely different purpose [illegible] gliders which have not been [illegible] signed for the last ounce of lift [illegible] the least head resistance.

"Once the trailer planes h[illegible] reached their altitude it takes co[illegible] paratively small power to tow th[illegible] at speeds up to 180 miles an ho[illegible] With planes used this way the c[illegible] of air freight will be less than f[illegible] class rail freight or less-than-c[illegible] load freight and greatly less t[illegible] rail express."



Converted: This new picture shows the Martin Mars 70-ton Navy flying boat, which was converted recently into "the world's largest air cargo carrier." Shown with the boat is the experimental crew that built her. Thirty-five men, spaced about six feet apart, stand along the 200-ft. wing and 215 other persons are grouped before the ship.

Denver Library Open[illegible] Aeronautics Divisi[illegible]

Establishment of a division [illegible] aeronautics in the Denver Pu[illegible] Library has been announced [illegible] Malcolm G. Wyer, Librarian. T[illegible] is said to be the "first . . . in [illegible] United States . . . of this kind"

Because of "new demands ma[illegible] upon the [illegible] brary for [illegible] sistance due [illegible] war activiti[illegible] a Consultant [illegible] A e r onauti[illegible] William [illegible] Barrett, h[illegible] been added [illegible] the staff. D[illegible] ver high sch[illegible] students [illegible] teachers [illegible] reported us[illegible] books to s[illegible] plement pre-flight courses; men [illegible] nearby Lowry and Buckley fi[illegible] are also using the library's facili[illegible] and students in the CAA transp[illegible] course at Denver University ha[illegible] "problems to solve."

Barrett

Barrett, the new consultant, [illegible] aeronautical reviewer for the Bos[illegible] *Post*, and has written articles [illegible] aviation for several of the gene[illegible] magazines. He plans "to make [illegible] division the repository for [illegible] records of Colorado's wartime act[illegible] ity, Army, university and Civil [illegible] Patrol." *Words About Wings*, a n[illegible] pamphlet describing books on av[illegible] tion, has recently been prepared [illegible] Barrett and published by the libra[illegible]

Civil Briefs

Wing Commanders: Each of the [illegible] Wings of CAP now has a commande[illegible] who is in full charge, with the ra[illegible] of Major, CAP. Previously, seve[illegible] of these commanders were in th[illegible] temporary status of CAP Captains

CAP Finds Lost Bomber: One of se[illegible] eral CAP planes found the wreckage [illegible] an Army four motor bomber in Arizo[illegible] recently, the press reported. All cre[illegible] members of the bomber were kill[illegible] when the big plane crashed into [illegible] mountain.

Hard-boiled babies

Adolf...here's that bomber—*again*. This hard-boiled baby helped stall your *Wehrmacht* at Dunkerque...and just the other night it was back blasting your ports, hounding your shipping.

Hermann...it's that Hudson your *Luftwaffe* has never really stopped...the ship the R. A. F. calls "Old Boomerang"—because it always comes back.

Hirohito...Tojo's met this Lockheed too, and he'll keep on meeting it...lots of places, and doing lots of things. For the Hudson not only does a job; it invents new ones for itself!

And, boys, it's got a big brother, the Vega Ventura, that has all the family characteristics, and some new tricks of its own! Lockheed Aircraft Corporation...Vega Aircraft Corporation...Burbank, Calif.

for protection today, and progress tomorrow, look to

Lockheed

FOR LEADERSHIP

Member Aircraft War Production Council, Inc.

'Tremendous' Airline Growth Predicted

(Continued from page 1)

headed by Owen D. Young, reminded air transportation people of rumors which have persisted for several years that the government has plans for eventual Federal operation of the national transport system. The report does look with favor on public ownership or leasing of the railroad fixed plant, placing it in the same category as public highways, waterways, and airways, but this appears to be the extent of expansion of Federal control suggested by the committee. The report was submitted to the President last May, but was not made public until its transmission to Congress in November.

Of 12 policy recommendations, that concerning expansion of air transportation is of primary interest to aviation. It reads:

"The impact of war conditions upon air transport through aircraft development and production, pilot training, airport construction and other aids promises a tremendous acceleration of the industry and an enormous peacetime capacity in the post-war period.

To Play Big Part

"The proposed National Transportation Agency should be directed to accept the unexampled challenge of air transportation by planning in the most enlightened manner for the establishment of the new medium as a major and integral part of our future transportation system.

"This planning must comprehend programs for conversion of the airplane industry from war to peace, for location and construction of airports on a vastly expanded basis, for enhanced development of aids to aerial navigation, and—above all—a rational program for coordination of air transport with other forms of transportation."

In its discussion of future traffic distribution, the report says:

"Unquestionably, air passenger traffic, especially business traffic, will continue to grow at a rapid pace, making considerable inroads on rail business. Extension of feeder service to many points which now lack air service, by the use of planes capable of getting in and out of restricted fields, will broaden the area from which airlines will draw traffic.

"The time is not far distant when first-class mail traffic will move exclusively by air whenever time is saved. Moreover, substantial expansion of the air express business may be expected. Costs can probably be reduced to a level substantially equivalent to present rail express rates, if volume and regularity of movement are attained.

"The advent of this business in volume will presage regular service by large merchandise planes. The mail and parcels business may well be extended to many small communities by means of devices for picking up and discharging traffic by planes in flight.

"In the most distant future the scope of air-freight operations should expand as costs are reduced and volume grows."

Circles the Globe

Further comment says air transport is "not only lacing the country with passenger, express, and freight carrying airlines and private planes but circling the globe with distance shattering schedules—backed by capacity to build more than 100,000 planes a year. All the airlines in the country owned only 350 transport planes before the war and have carried from 10% to 15% as many passenger-miles as all the Pullman cars."

Commenting further, the report says:

"Technical advance has been particularly rapid in the field of air transport where, perhaps, the greatest potentialities exist for further development. Larger and more speedy transport planes have been placed on the market at frequent intervals. Operating costs per plane mile have consequently increased but calculations on a ton-mile basis indicate rapidly decreasing operating costs. This tendency may be expected to continue in the future.

"It may be that ton-mile costs of airplane operation will be reduced to 6c or thereabouts, enabling a strong bid for much traffic now moving by rail or highway.

"Since one of the important advantages of the plane is its speed, time lost in ground transportation at both ends of the run is a serious drag. This problem may be partly solved through the use of the autogiro in shuttle service to downtown terminals. This type of plane is not being actively pushed at present but would seem to offer important possibilities, given further technical advance.

"A promising new direction for plane development is opened by the recent experiments with the flying wing both here and abroad. Considerable improvement in performance is indicated for large planes of this type, with accompanying reductions in operating cost.

"The use of higher octane fuels is a possibility for the near future and, as motors grow beyond 2000 hp it is probable that the diesel will again come in for consideration because of its economy.

"At present all commercial developments are strictly curtailed . . . but after the war present productive capacity must seek outlets in the commercial and private air transport fields. Reductions in first cost that will greatly reduce fixed charges may be confidently expected, as well as rapid expansion in economical air operation. The big problem will be one of providing adequate landing fields to accommodate the increasing business.

"Little imagination is required to picture a rapidly developing industry that will both create new transportation and make inroads upon the traffic of its competitors, especially the railroads."

'Phenomenally Rapid'

Technical advance in air transport has been "phenomenally rapid," the report continues.

"Development of larger planes, coupled with great expansion of productive facilities, promises economical cargo planes in the near future. Small planes for private use are also being designed in the lower price classes, and the ease with which they can be handled, the increasing safety factor, and the greater operating economy, combine to promise a rapid growth in private plane travel."

The report says that since 1930 there has occurred a revolution [illegible] transportation.

"No longer may it be said [illegible] the domestic transport problem [illegible] merely a railroad problem, or [illegible] public policy can concern itself [illegible] ly with the railroads. Today [illegible] railroads, though still the backbo[illegible] of the freight transportation syste[illegible] are but one of the several ma[illegible] forms of transportation, and [illegible] problems which beset them are [illegible] longer attributable to a passing di[illegible] ruption of cost-revenue relatio[illegible] ships but to the development of ne[illegible] and vigorous competitors. Advan[illegible] ing technology has promoted in [illegible] highway, waterway, pipeline, [illegible] airway fields formidable rivals [illegible] the railway industry.

"The future of the railroad [illegible] in its continuance as the princip[illegible] agency for heavy freight moveme[illegible] . . . Except for the waterways [illegible] agency of transport can seriou[illegible] challenge them save on the short[illegible] hauls . . .

Challenges Truckers

"The short-haul business must [illegible] expected to gravitate to the mot[illegible] truck, but severe competition m[illegible] develop within a few years fr[illegible] air-freight service on the long[illegible] hauls."

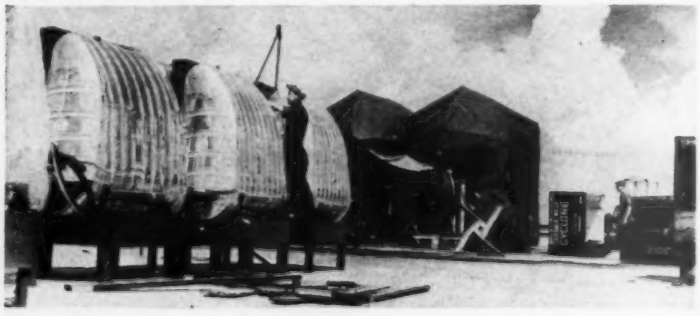
Noting a phenomenal increase [illegible] recent years in all private carriag[illegible] the report finds that "private flyi[illegible] has . . . grown rapidly but has no[illegible] as yet, attained major proportions. Largest portion of passenger bus[illegible] ness moves in private autos.

The report, in its discussion of th[illegible] future of transportation, says th[illegible] no final solution will ever b[illegible] achieved, but the problem is to s[illegible] up machinery and to formula[illegible] guiding principles whereby co[illegible] tinuing adjustment can be made [illegible] new situations as they develop, [illegible] changes in the technology of tran[illegible] port, to changes in the character [illegible] demand for transportation servic[illegible] to changes in economic organizatio[illegible] and finally, to changes in nation[illegible] policy.

The study was begun in the sum[illegible] mer of 1940 under Mr. Young, [illegible] chairman of the Advisory Com[illegible] mittee for the Study. A sma[illegible] nucleus staff was assembled by th[illegible] Board under Assistant Direct[illegible] Ralph J. Watkins, supplemented b[illegible] staff members of various Federa[illegible] agencies concerned with transpor[illegible] tation.

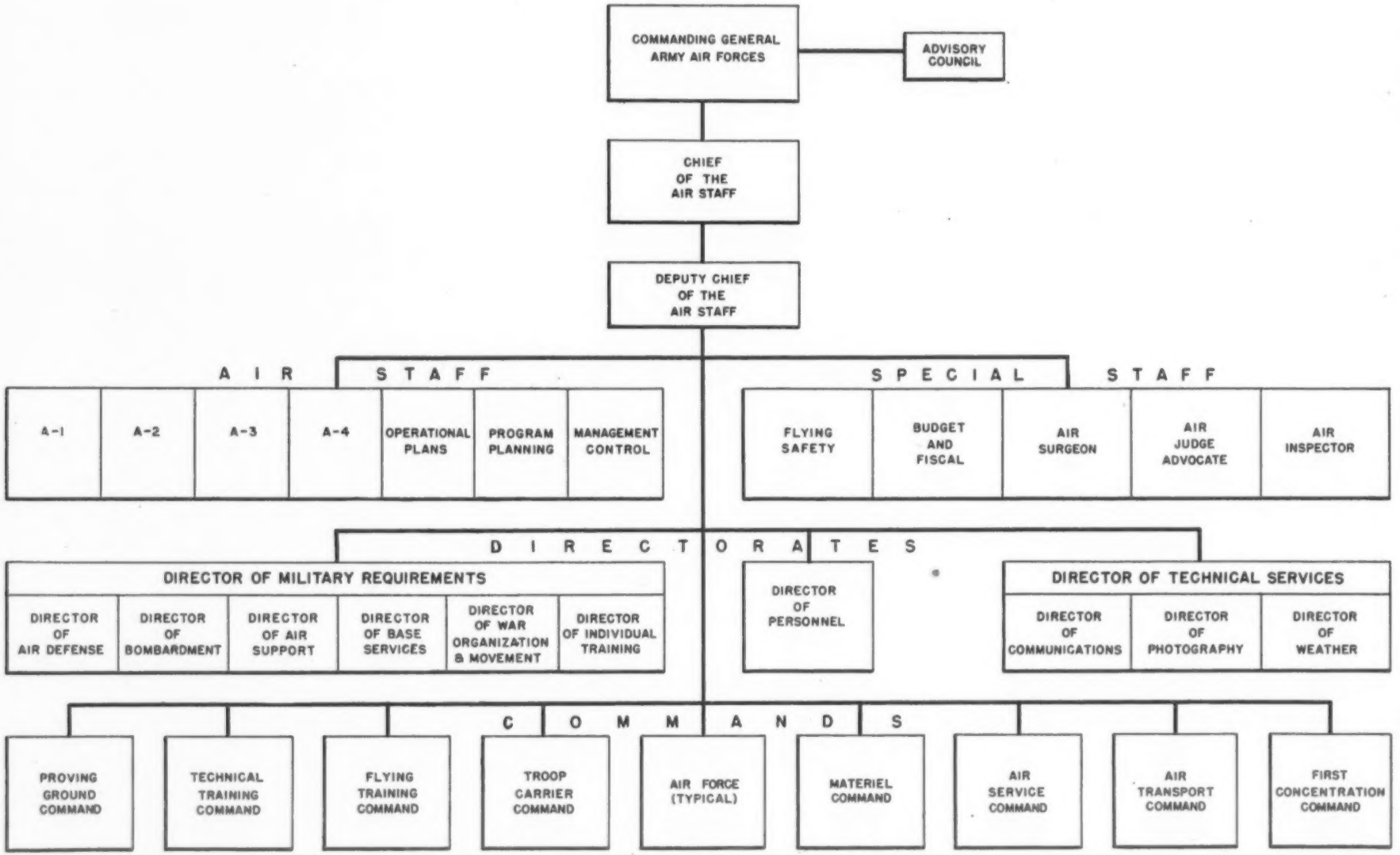
The Board in its letter of trans[illegible] mittal to the President added: "Plans for post-war development cannot be considered apart from the necessity of completely overhauling the basic transportation facilities of the Nation. This physical reconstruction, combined with service and policy revisions, must aim not only at modernization but at the ulti-

(Turn to page 22)



For Long Hops: Extra gas tanks are made ready for installation in Flying Fortresses. Photo was taken at an unidentified Air Forces field.

ORGANIZATION OF THE ARMY AIR FORCES



This chart, the newest one released, shows clearly the organization of the Army Air Forces. It was prepared by the assistant chief of air staff, management control, and graphically illustrates the growth of the Air Forces, when compared with the Army Air Corps of a few short years ago.

GENERAL

Proper Loading Increases Payload ⅓, Firm Reports

Proper methods of loading cargo aircraft could add as much as one-third to payloads now being carried, Evans Products Co., Detroit, reports in announcing new and lightweight equipment designed to hold freight securely in place during flight.

Articles are still being shipped in crates which weigh up to twice as much as the commodity they are meant to protect in transit, the company points out. Since loading of a plane is simpler than that of a freight car, lighter materials can be used for protection.

"A good formula is to fasten your load so that the materials used will have strength enough to withstand a strain of 2½ times the load being held," the company says. "It is found from experience that the maximum strain is usually 2.4g. Thus if the article weighs 3,000-lbs. it would exert a maximum strain of about 4,500-lbs. The loading materials necessary to fasten a cargo in an airplane need weigh only about 1% of what they do in a freight car."

Describing the new equipment, some of which is being used by the Army and airlines, the company emphasizes simplicity of operation which speeds loading and unloading, and cuts ground time.

One method uses hook-rods, locking device, twin wood beams and jack. The rods are hooked into eye-bolts in the plane's floor at each side of cargo, and the wood beam is slipped over the rods and locked securely in place. Thus, the hook-rods act as a transverse bar to any vertical movement of the freight. The action of the jack is such that any desired pressure can be exerted on top of the load and lock each wood beam or cross member.

"This system does not require the use of rope and permits speedy loading and unloading of cargo," the company says. "In actual loads already transported over thousands of miles, this hold-down equipment has held the cargo safely in place without movement of any kind in transit. It is particularly adaptable to holding heavy cargo such as drums, barrels, boxes, cartons, etc."

All of the new Evans equipment can be used either in cargo planes now flying or as an integral part of freight planes engineered to original design and installed at construction," J. C. Goldrick, vice president, declared.

Another method is Evans Rope-Hook and Tightener equipment, which may be used separately or in conjunction with wood-beam hold-down equipment. This method simplifies rope tieing, eliminates rope cutting and saves time. Specially designed hooks, which hold rope, are attached to eye-bolts in floor or wall of plane. A unique tightener is employed to take up all rope slack at time of making load; further tightening can be made in transit if rope should stretch from its original tautness or tension.

Also announced is tubular type hold-down equipment designed for permanent installation as an integral part of cargo planes. This consists of perforated tubing. four tubes installed longitudinally—one at each side, above, attached to ribs in the roof of plane in cargo compartment, and two installed in floor attached to floor posts. To these longitudinal tubes are fastened adjustable vertical members, to which can be fastened tubular cross members. The cross members can be pressed downward on the cargo, exerting sufficient pressure to prevent any movement of the load they are designed to hold.

Vertical members and cross members are removable, interchangeable, and are designed so that they can be adjusted at ½ inch intervals.

NATA Convention

National Aviation Training Association announces its annual convention will be held Dec. 9 and 10, at the Hotel Phillips, Kansas City, Mo.

Airline Growth

(Continued from page 20)

mate realization of a transport industry which will permit each mode of transport its economic functioning as an integral part of the whole system. Finally, the transportation policy of tomorrow must offer constant encouragement for innovation and ample opportunity to meet the needs of changing conditions to assure that transport development may at all times contribute maximum impetus to national achievement . . . The only barrier that stands in the way are those of our habits of thinking, of our fiscal policy, and of our organizational limitations."

Basic aim of transport policy must be maximum efficiency at minimum cost, the report says. Each mode of transportation must operate in its field of greatest economy and usefulness and functioning with a minimum of waste and duplication, with a rate level which is as low as possible, yet adequate to support progressive development of transportation facilities and services and of labor standards, and with a rate structure that does not unfairly discriminate against particular persons, commodities, places, or regions, and conversely grants no undue favors.

"The magnitude of the American transportation system, including its railways and pipe lines as well as its publicly fostered facilities, provides impressive testimony of the emphasis which the nation has placed upon the need for transportation service. The national bill for that service is probably more than $20,000,000,000 a year, and nearly a fifth of all investments are in transportation. The Federal government alone invests a billion dollars a year in transportation facilities. The progress of the past is impressive, but the gains that lie with our grasp in the years ahead can overshadow that progress . . .

"A major objective for the future must be a lower level of rates and fares in the transport industry to place the rate structure in a more favorable position with respect to other prices, in order that restrictions on movement may be minimized. There is considerable re... to suppose that transport has b... discouraged by a rate struc... which fails to respond quickly ... changes in economic conditions, ... a rate level which may be ou... line with the market possibilities ... many commodities. There is dan... that a permanent reduction in tr... volume may result. A reversal ... present tendencies by gre... economy in transport operati... may vastly widen the future ... transportation. Improved serv... too, is an important aim for ... future.

The most neglected aspect ... transport development has been ... provision of terminal facilities, it ... stated. The antiquity of port fac... ties; the duplication and inefficie... in railroad freight yards and s... tions; the difficulties of urban tr... loading and passenger car parki... and the lack of modern, convenie... ly located, and properly protec... airports are all familiar manifes... tions of the universal neglect of t... minal operations. Failure to sec... the possible economics of termi... unification, coordination, and m... ernization constitutes one of ... most important reasons for hig... cost rail operation.

"Poor location, small sites, co... gestion, and other inadequac... typify a large number of airpo... into which much public money h... been sunk. Location is often inco... veniently distant from downto... business districts, and adequate pr... vision is rarely made for highw... access or transit connections. ... addition, many airports are dange... ously located with respect to su... rounding buildings and other ob... stacles, making them unsatisfacto... for instrument landings or even f... visual approaches in bad weath... Airport congestion, too, has beco... a serious factor, and the need h... arisen for segregation of priva... from commercial flying and for t... provision of additional airports ... accommodate increasing termin... activity . . .

"Great improvements in servi...

(Turn to page 27)

Air Cargo Fasteners: Photo on left shows the tubular type hold-down equipment designed by Evans Products Co., and described in the above story. Note that room is provided on the right for an aisleway to the pilot's compartment. Center photo shows the full-scale cargo plane model turned completely over, with the load still intact. Photo on right illustrates two types of Evans hold-down equipment. The on the left consists of rope, hooks and rope tighteners, while the one o... the right consists of tubes with hooks in one end for attaching in floo... or walls of plane, with twin wooden cross members which can b... tightened down on the tube.

Yes, THE HELICOPTERS ARE COMING

THAT'S a fact which has just been brought home to the American public by Igor Sikorsky's recent article in *The Atlantic Monthly,* reprinted in *Reader's Digest,* and by the Sikorsky helicopter pictures in a recent issue of *Life.*

But it wasn't news to Aircooled Motors Corporation, whose Franklin engine powered the original Sikorsky experimental helicopter during its development period.

Whether it's a stock engine for a light plane, power for a helicopter, or designing and building warplane engines for Uncle Sam's Army and Navy (our current job) . . . you can depend on Franklin's 42 years of air-cooled experience to produce fine engines.

AIRCOOLED MOTORS CORPORATION, SYRACUSE, N. Y.

Franklin

FINE AIRCRAFT ENGINES

★ ★ ★

American Aviation

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American Aviation Directory: Published twice a year, spring and fall. Complete reference data on administrative and operating personnel of airlines, manufacturers, accessories firm and their products, organizations, schools and local operators, federal and state government agencies concerned with aviation and related aviation interests in the U. S., Canada and Latin America. Single copy. $5; Annual subscriptions, $7.50. Discounts on quantity orders. Distribution of next issue scheduled for third week in November. Helen L. Walsh, *Managing Editor.*

Fortnightly Review

(Continued from page 1)

are not staggering, to be sure, but the thirty, forty, seventy tons of each will soon build up into the hundreds, then thousands, of tons.

In another direction, the Defense Supplies Corporation is building an aerial shuttle service to bring thousands of tons of rubber into this country from South America. Here will be the first large-scale demonstration of long-distance air freight in history and perhaps the first such large demonstration in which the traditional surface transport methods will be seriously challenged by the airplane. It is history in the making.

The private airlines are also moving heavy freight. Pan American Airways has loaded up whatever excess capacity it has had with such products as rubber. And TACA is bringing in tons of gold and silver from Central America.

Air *freight*, by which the measurement is in *tons* instead of *pounds*, is on the way. The opening of an era is taking place. Each day the curtains draw further apart. How truly is Tennyson's uncanny prediction of 1842 coming true!

"For I dipt into the future, far as human eye could see,
Saw the Vision of the world, and all the wonder that would be;
Saw the heavens fill with commerce, argosies of magic sails,
Pilots of the purple twilight, dropping down with costly bales."

A National Agency?

WHETHER or not one agrees with the recommendation of the National Resources Planning Board that a National Transportation Agency be established by the government to coordinate all Federal development activity in transportation there can be nothing but commendation for the massive report itself.

Especially noteworthy are the far-seeing comments about air transportation. It is heartening to read in a government report such statements as: "Flying represents a fundamental revision in the ways of mankind, an open sesame to a new world." "Flying is creating a three-dimentional consciousness, an awareness of the personal implications of flight on the part of countless millions of people throughout the world." Throughout the 500-page report there is an awareness of the importance and limitless possibilities inherent in the airplane.

The specific recommendations for air transportation are curiously vague, or perhaps sensibly so. The difficulties and pitfalls of attempting to lay down a pattern of government sponsorship or regulation at this stage are patent. The report is unstinting in favor of development and expansion, but its only specific advice is to effect coordination between air and other carriers. Such would be accomplished, of course, through the proposed National Transportation Agency, but air transportation escapes the somewhat shattering conclusions and admonitions given the railroads.

As for a National Transportation Agency there is much in favor from the all-over transportation picture, but there are also many disadvantages. Such agencies often tend to retard development rather than speed it. Being the newest carrier in the nation, air transportation is likely to suffer, perhaps seriously by being placed under the same roof with all other carriers. We are not prepared at this point to favor or oppose such an agency in the long-range view, but certainly for the present we believe air transportation should be "given its head" in a constructive development period unimpeded by all the retarding influences of surface transportation.

The report itself, however, is packed with readable information and data. It is worthy of thorough study. To airlines which have not been too much concerned about the over-all transportation picture, the report is commended. In the post-war period the national and international transportation problems will be among the knottiest to solve.

Manpower

MANPOWER takes this month's award as the most confused muddle in the nation. It is so involved that nothing short of a powerful Executive Order and directive can unravel it. Meantime the nation's productive efforts are being seriously impaired by lack of policy.

When aircraft companies experience a 100% turnover in personnel in one year, something is radically wrong in the government's program. One company is experiencing turnover now at the rate of 160% annually. The average length of employment of new employes is only two-and-a-half months. This is not the way to provide the tools of war.

It is estimated that fully fifty per cent of the turnover is controllable by Washington directive. Employes are shifting from one plant to another to avoid having their wages frozen. Women who flocked to the factories to earn easy money are finding that they have to work for their wages and find the glamor of factory work disappears quickly. Wives of servicemen quit their jobs to follow their husbands on new assignments in other parts of the country. These shifts are controllable by government action. The other fifty per cent is caused by drafting, enlistments and other factors not easily controllable in war-time.

Meanwhile every sort of report issues from Washington. Congress, Selective Service, Paul McNutt, Mrs. Roosevelt, the labor leaders and other assorted individuals and organizations add confusion to confusion. The manpower problem is the most pressing and serious current issue confronting the White House. It needs immediate action, else the government's production needs will not, and cannot, be met.

Letters

Another Pilot Protests

New York, N. Y.

Reference is made to the fine letter in your Nov. 1 issue, from an airline pilot. As another airline pilot, I endorse his statement wholeheartedly. I would also like to supplement it with a few remarks of my own.

One of the excuses for this attempt on the part of the Air Transport Association to break down our standard of wages, hours and working conditions is that military pilots are doing the same type of flying as our cargo runs for less money. This may be so. However, if there is to be a comparison of military salaries and commercial salaries, why start with the pilots? Carrier executives sit on their flabby bottoms in plush-carpeted offices, and mentally compare themselves favorably with George Washington, while they draw salaries two or three times as large as the salary of a general in the Army. Welders and other skilled craftsmen in the large aircraft factories can earn up to $100 a week. The non-commissioned man in the Army doing the same, gets whatever his rank calls for, probably less than a quarter of the factory wage. It should be remembered that our wage scale was established during the depression years when wages in general, and also prices, were very low. Now with inflation upon us, prices spiraling, all other wages greatly increased, we have received no increase in wages, and we have asked for none. In fact, when we agreed to increase our monthly maximum from 85 to 100 hours of flying, we obligated ourselves to do 17½% additional flying without any increase in base pay.

Our present great airlines were not, as some carrier officials seem to believe, developed as the result of clever stock manipulations. They were, in far greater measure, built upon the skill, courage and experience of the airline pilot who with infinite patience, study, trial and error, perfected himself in his profession until he finally earned the confidence of a skeptical public. Any effort on the part of the Air Transport Association to tear down our standard of wages and working conditions, therefore, constitutes a javelin thrust at the heart of the group which was the greatest single contributing factor in building a solid foundation under their original house of cards.

And to further use the accusation of "non-patriotic" as the launching device for the javelin, certainly places the whole machination in the category of pretty small business.

The suggestion that the pay should be lowered because younger and less experienced pilots will be doing the flying is pure poppycock. If a man is qualified to do a job he should be paid the wage scale for that job. If he isn't qualified he shouldn't be permitted to try and do the job. Any radical deviation from this will only result in wrecked airplanes, dead pilots and lost cargo.

In other words, as long as these cargo runs are a commercial operation with a commercial airline receiving a cost plus profit on their conduct of such runs, the pilots and other employes should be entitled to their regular wages without any reflection whatsoever on their patriotism.

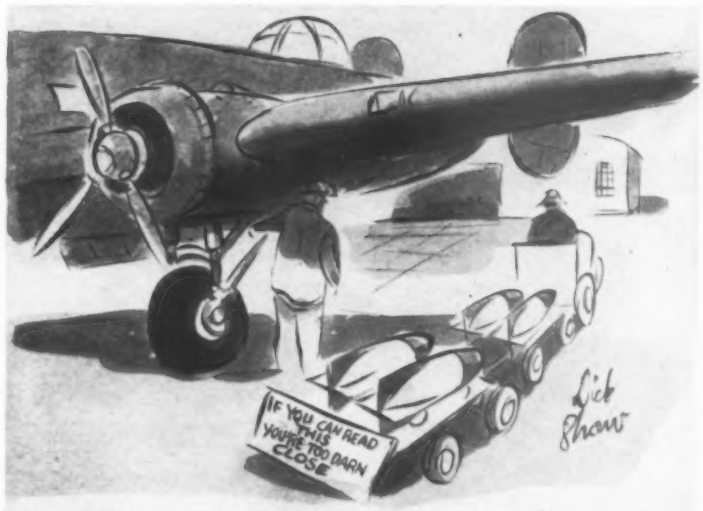
Also, if it becomes necessary for the Army to take part in any of the future negotiations pertaining to this issue, it would greatly increase the pilots' expectations of getting a fair deal if they definitely knew they were dealing with an impartial Army officer rather than with an ex-airline official.

In the latter case, the suspicion is bound to arise that such an official's patriotic left hand might not know what his post-war right hand is doing. Whether justifiable or not, this suspicion is already started.

This issue is tremendously important to every pilot in the airline industry, and be assured that your open-minded attitude permitting the expression of individual opinions in your fine magazine is greatly appreciated.

Another Airline Pilot

★ ★ ★



Bookshelf

METEOROLOGY FOR SHIP AND AIRCRAFT OPERATION. By Peter Knight, Senior Meteorologist, American Airlines Inc. Cornell Maritime Press, 250 W. 23d St., New York. 360 pp. $3.00. Illustrated with 155 diagrams and 14 photographic reproductions of cloud forms.

This handbook "is designed to assist airmen and seamen in obtaining a working knowledge of meteorology as it applies to their particular weather problems," the author states.

Vertical and horizontal winds, accompanying weather, and the problems of aircraft and seacraft involved, are discussed. Only atmospheric phenomena having a bearing on the safety and economy of aircraft or seacraft operation are scrutinized in detail. Ponderous theoretical considerations are trimmed to the bone, and converted into practical directives.

Included are glossaries of winds and technical terms and 21 practical tables.

FLIGHT INSTRUCTOR. By Charles A. Zweng, former U. S. Army Air Corps Instructor. Pan American Navigation Service, 12021 Ventura Blvd., N. Hollywood, Cal. 480 pp. $4.00.

Beginning with a brief history of aviation, this text carries the student step by step in logical sequence from aerodynamics on through the fundamentals of flight training. It is designed especially to meet the general requirements of civil and military flight instruction in the United States.

Primary and advanced maneuvers are fully covered and illustrated. A full chapter is given on cross-country flying.

Methods of grading students on various types of flights are dealt with, and written examinations for the student suggested.

Chapters cover: history of aviation, aircraft and theory of flight, flight training, technique of basic flying, preliminary instruction, instruction requirements and sequence of maneuvers, down-wind turns, elementary maneuvers, intermediate and accuracy maneuvers, instruction in cross-country flying, do's and don't's for the instructor, civil air regulations, private flying, flight examiners, load factors and air traffic rules.

Booklets

Flight, published by American Technical Society, Drexel Ave., at 58th St., Chicago, Ill. 64 pp. Illustrated with diagrams.

Air Line Hostesses, published by U. S. Office of Education, Federal Security Agency, Washington, D. C. 13 pp.

Prepares Folder

Eagle Pencil Co., New York, N. Y., announces it has prepared, in conjunction with several aircraft manufacturers, a series of folders on mechanical drawing problems for basic instruction in aviation drafting, entitled *Drafting for Victory*. Problems will be furnished monthly to drafting instructors in schools and colleges. It is understood the companies cooperating include the Boeing Aircraft Co., Brewster Aeronautical Corp., Consolidated Aircraft Corp., Curtiss-Wright Corp., Douglas Aircraft Co., Inc., Lockheed Aircraft Corp., North American Aviation, Inc., Pratt and Whitney Aircraft, division of United Aircraft Corp., and Vultee Aircraft, Inc.

Library Transferred

Society of Aeronautical Weight Engineers has announced that its library has been transferred to the office of Howard W. Barlow, director of the Aeronautical Engineering Dept. of Texas Agricultural and Mechanical College, College Station, Texas. Available papers include such titles as Airplane Weight and Balance Control; The Weight Engineer and the Flutter Problem; A Practical Method for Wing Weight Estimation, Weight Saving by Cleaning Aircraft, and other similar subjects. Copies of papers in this collection may be obtained from Barlow's office. Price is 25c each for members and 50c for non-members.

Kinner Catalogue

A catalogue has been published by Kinner Motors, Inc., Glendale, Cal., which shows various types of Kinner aircraft engines. It has convenient descriptions of motors by horsepower ratings, and a detailed construction table of essential motor parts.

Kudner Named

Elastic Stop Nut Corp., Union, N. J., announces appointment of Arthur Kudner, Inc., New York, N. Y., as its advertising representative.

Obituary

Jack Zimmerman

Lt. Col. Jack Zimmerman, 37, control officer at a North Atlantic base of the U. S. Air Transport Command, was killed in a plane crash Nov. 2 in the Gulf of St. Lawrence, according to press reports from Toronto.

After having been associated with Transcontinental and Western Air, Inc. for 13 years, Zimmerman joined ATC last May. With TWA, he was pilot and chief pilot in the Eastern and Atlantic divisions, and had more than 2,000,000 miles of flying to his credit. He was one of the first air mail flyers in this country.

When New York's La Guardia Field was opened to traffic in 1939, Zimmerman flew in the first transport plane, on Dec. 1 of that year, initiating regular passenger service. On June 9, 1940, he inaugurated TWA's Stratoliner service by making a new record in the west-east flight from Burbank, Cal. to New York.

While attending Ohio State University, Zimmerman was called by the Army, admission to which he had previously applied. He was assigned to March Field, Cal., in March, 1928, where he progressed to solo flight in five hours. In November, 1929 he was transferred to Kelly Field, Texas, with rank of pursuit pilot. The following March he went to Langley Field as Second Lieutenant. Later, he left Langley and joined TWA's predecessor company, Transcontinental Air Transport.

XUM

FLEETWINGS

Aircraft Parts Help Re-paint Another Sign...

NINE months ago, as an indication of the spirit with which Fleetwings' men and women were turning out increased quantities of aircraft parts, the company re-painted its "Defense Plant" signs . . . changed their wording to "*Attack* Plant."

Today, the total of Fleetwings parts rolling off our assembly lines is greater than ever! And Fleetwings parts... wings, flaps, stabilizers, ailerons, fuselage sections, hydraulic equipment . . . incorporated into American fighting 'planes, are helping to turn the "No Man's Land" on the air-fronts into "U. S. Territory."

Of course, today's vast production at Fleetwings is all earmarked for war. But for peace, Fleetwings' engineers already have plans on the drafting boards. With Victory they will grow and shape themselves to help fly America to her ultimate destiny in the skies.

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FLEETWINGS

Incorporated

BRISTOL • PENNSYLVANIA

FLEETWINGS
pioneers with parts and hydraulic equipment

The BT-12, all-welded basic trainer built for the U. S. Army Air Forces.

CREDIT FOR THE FIRST all-welded military 'plane constructed principally of stainless steel goes to Fleetwings for the BT-12. A fleet of these sturdy, air-worthy basic trainers is now a-building at Fleetwings for the U. S. Army Air Forces.

THE GROUP of time-saving production tools designed by Fleetwings' employees continues to grow each month. Newest of these tools is an electric "mouse," an intriguing little device to aid loftsmen in drawing extra long straight lines. The "mouse" improves accuracy and greatly reduces drawing time.

ONE OF THE REASONS for the outstanding "in-service" record of Fleetwings-designed hydraulic equipment lies in the grueling testing each hydraulic valve and jack must undergo before it leaves our plants. Valves, for example, undergo proof tests, body pressure tests, heat and cold tests, and torque tests in addition to a check on dimensions which rejects variations greater than two one-hundred-thousandths of an inch. Fleetwings hydraulic equipment is designed for use on U. S. 'planes to actuate retractable landing gear, bomb doors, wing flaps, etc.

SAVING SIZABLE sheet-metal remnants and using them systematically for forming small-assembly pieces is another measure that Fleetwings has originated to help win the "War on Waste." Time, money, and effort—all are saved by this unique, sound system.

"KEEP 'EM FLYING!"

FLEETWINGS
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CAA Immune From Yearly Cuts in Non-Defense Funds

Civil Aeronautics Administration "non-defense" expenditures have almost doubled since 1939, although virtually all other "non-defense" expenditures have gradually been cut over the past 10 years, a recent report of the President to Congress reveals.

CAA defense appropriations have multiplied with the same rapidity as other war appropriations since Pearl Harbor.

CAA "non-defense" expenditures for three years are: 1932, $6.5 million; 1939, $14.2 million; estimated for 1943, $26.3 million.

The tremendous impetus the war has given CAA is disclosed by comparing expenditures for 1939 and 1943 fiscal years:

(1) In 1939, CAA total expenditures amounted to $14,351,480—a sum only slightly more than the $14,200,000 non-defense expenditures.

(2) For 1943, total CAA appropriations (including 1942 supplementals) amount to $380,300,000—over 26 times total 1939 expenditures. The $26,300,000 estimated for non-defense expenditures for 1943 is almost double non-defense expenditures in 1939.

Compared with 1932, CAA has a 19.8 million increase in 1943 for non-defense expenditures. The President in his report points out that of this increase $16.9 million—much the greatest portion—"covers maintenance and operation of expanding Federal airways." Other items in the increase are $2.5 million incurred in costs of administration and safety regulation and $.4 million as an annual expenditure for the new Washington National Airport. Current receipts of the airport now cover operating expenses, the President reports.

To Congressmen and Senators zealously checking up on Federal expenditures, particularly non-defense expenditures, the President explains the CAA increase in his report, as follows:

"The rapidly broadening aviation horizon of both commercial and private flying and the Civil Aeronautics Act of 1938 made necessary more Federal supervision to provide safety in the air. Military requests during the past year for inspection of new plane types and appliances and for many other technical services have prevented a contraction of expenditures in line with the curtailment of civil flying.

"From a total mileage of 18,000 in 1932 the system of Federal airways grew to 33,000 miles in 1942. Presumably radio ranges, beacons, and other aids to navigation to be maintained and operated increase in number proportionately to this growth; actually the increase is relatively greater because of new types of aids. Although these facilities are operated and maintained as a non-war activity for commercial flying, it is estimated that more than 80% of present airway travel is military.

"Since 1939 CAA activities have changed from a civil to a preponderantly military aspect. Extensive developments were undertaken to provide new navigation facilities of strategic military value not only in the continental U. S. but in various outposts in both the Pacific and Atlantic Oceans, particularly Alaska where expenditures have risen sharply. Teletype circuits which transmit weather reports and air traffic control data, increased from 13,000 miles in 1932 to 74,000 miles by 1942 thus aiding the military air forces."

Airline Growth

(Continued from page 22)

better utilization of land and air rights, and the removal of many existing blighted areas would result from rebuilding terminal facilities. The objective would be, of course, to fit into the most desirable pattern of urban development a series of coordinated terminals serving all types of transport and open on equal terms to all carriers serving the area. These would replace the multiplicity of scattered facilities which have grown in and around most of our large cities in a more or less haphazard fashion and would handle rail, motor, water, and air transport within the framework of a single plan. Thus, there would be eliminated much of the wasteful transfer and hauling which occurs under existing arrangements, and the marked loss of time which results from the use of scattered facilities under diverse ownership. Central terminals would be connected with all parts of the urban area by belt rail lines and trucking facilities."

The full report, as issued by the Superintendent of Documents, at a cost of $1.25, comprises 500 pages. Its title is "Transportation and National Policy."

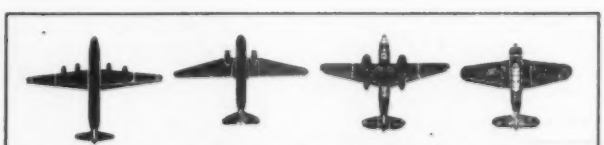
More than 300 pages are devoted to Part I, "Problems of Transport Policy." This is the main report. Its subchapters cover history and development of transportation media, influence of transportation on location of economic activities, freight rates, problems of transport organization, railway financing, transportation and public promotional policy, government ownership and operation of railroads, and role of public action in transportation abroad.

The remaining pages are devoted to Part II, special studies on air transport, shipping, highway transport, inland waterways, pipelines, railways, and labor. The section outlining the air transport system was written by J. Parker Van Zandt, now heading the Department of Commerce's Office of Air Transport Information, under William A. M. Burden, Special Aviation Assistant to the Secretary of Commerce.

XUM

JOHNNY SKYTROOPER, U.S.A.

LOOK OUT BELOW! Johnny Skytrooper is rough, tough and nasty. Striking behind enemy lines he hits hardest where it hurts the most. Douglas C-53 "Skytrooper" transports carry him swiftly on his mission of destruction; Douglas C-47 "Skytrains" and C-54 "Skymasters" follow through with his supplies. Setting the pace for war transport production, Douglas is proud to provide the equipment for Johnny Skytrooper to "win with wings." Douglas Aircraft Co. Inc., Santa Monica, Calif.



Left to right (1) C-54 "Skymaster" (2) C-47 "Skytrain," C-53 "Skytrooper" (3) A-20 "Boston," A-20 "Havoc" (4) SBD "Dauntless" TBD "Devastator," A-24 "Banshee"

DOUGLAS

MEMBER, AIRCRAFT WAR PRODUCTION COUNCIL, INC.

Public Council Recommends Seven Caribbean Routes for Six Airlines

CAB Hears Oral Argument on Important Case

SIX AIRLINES, including U. S. and foreign companies, should be granted seven temporary routes to provide war-time transportation in the Caribbean area, according to a brief filed with the Civil Aeronautics Board by public counsel on Nov. 13.

Three days later, the Board held oral argument on the case and heard the applicants press their claims for a chance to do the job.

Public Counsel James Verner urged the Board to establish the following routes in the Caribbean: KLM Royal Dutch Air Lines, Miami-Havana-Camaguey-Port au Prince - Jamaica - Aruba - Curacao; TACA, Miami-Tegucigalpa-Managua-San Jose; British West Indian Airways, Miami-Kingston-Port au Prince-Cuidad Trujillo-Antigua-St. Lucia-St. Vincent-Port of Spain.

Expreso Aero Inter-Americano (goods only), Miami-Havana; National Airlines, Miami-Guantanamo-Port au Prince-Cuidad Trujillo-San Juan; Eastern (1) Miami-Merida-Belize-Guatemala-San Salvador-Tegucigalpa-Managua-San Jose-Balboa, and (2) Miami-Camaguey-Kingston-Barranquilla-Balboa.

This is the largest number of routes ever recommended by public counsel in a single CAB proceeding. (Public counsel is an attorney employed by CAB to represent, in an impartial capacity, the public at CAB hearings. His brief carries the same weight as those filed by applicants' attorneys—ed. note).

The only applicant not recommended by Verner was Cubana. ". . . little good would be accomplished by the issuance of a permit," he said. "Pan American (owner of Cubana) is already certificated between Miami and Havana and the same amount of service proposed to be provided by Cubana is already being provided under a contract arrangement."

The Board heard Leslie Craven, attorney for TACA and BWIA, charge that under the Atlantic Charter and the Good Neighbor Policy, the Board is required to allow his clients to enter the U. S. as common carriers. Failure to grant this privilege will "blow the roof off" U. S.-Latin American relations and will violate the Atlantic Charter of President Roosevelt and Prime Minister Churchill, he claimed.

The people of the various countries involved, he added, are behind the TACA and BWIA proposals, asking how the U. S. can deny them the service.

He called Pan American Airways an "instrument of imperialism" and as such, "as outmoded as a hair sofa."

On the other hand, Henry J. Friendly, PAA attorney, defended PAA's position in the Caribbean and doubted whether TACA and BWIA officially spoke for the countries involved. Given the airplanes, PAA could do as good a job and probably a better one, he asserted.

Quotes Charter

Craven quoted two sections of the Atlantic Charter to support his argument. The fourth section, he said, states that the signers of the Charter "will endeavor, with due respect for their existing obligations, to further the enjoyment by all states, great or small, victor or vanquished, of access, on equal terms, to the trade and to the raw materials of the world which are needed for their economic prosperity."

The seventh section, which he interpreted as applying also to the air ocean, states that "such a peace should enable all men to traverse the high seas and oceans without hindrance."

Tons of vital cargo (including two tons of chlorine for Costa Rican water purification) and scores of passengers are awaiting air transportation south from Miami, Craven said. TACA, he added, is now utilizing some of its equipment only six hours daily and would, if made a common carrier, be able to increase this to at least 10 and possibly 12.

Eugene Underwood, KLM attorney, told CAB that his company is fit, willing and able to supply the service sought. Three Lockheed 14s would be used, he said, pointing out that in the year ended Oct. 1, 1942, KLM completed 99.2% of its flights, and that of these 98% were on time or less than 15 minutes late.

William I. Denning, representing National, stated that his client could operate a trip from Miami through the Caribbean without disrupting its regular domestic schedules.

Robert Thach, of Expreso, said that his company proposes a cargo-only service from Miami to Havana with single-engine equipment. Authorization by the Cuban government was given this carrier two weeks after it had given Cubana permission to operate a similar service, showing that Cuba would like to see schedules by both companies, he stated. The company has four Lockheed Vegas, one Sikorsky amphibian and one Ford tri-motor.

Eastern, according to Smythe Gambrell, attorney, can make four planes available for Caribbean service by discontinuing a New York-Houston trip and two New York-Miami trips, including one all-cargo schedule. These trips, he emphasized, were added by EAL on its own initiative. Gambrell stated that this was EAL's opportunity to grow, and was the Board's opportunity "to let Eastern out of the vice in which CAB has unintentionally placed them." The vice referred to was CAB's allowing Pan American to operate New York-Miami and American to enter Mexico City.

Conclusions

Conclusions reached by Public Counsel Verner in his brief were:

"1. Pan American is carrying near capacity loads of priority traffic on its terminal to terminal trips between Miami and Buenos Aires via the east coast of South America. Because of the lack of other regular transportation facilities many passengers and much property formerly moving by steamship must now travel by air. Much of such traffic must be deemed essential traffic.

"2. Pan American is presently unable to transport some passengers . . . between several important segments of its routes.

"3. The public convenience and necessity and the public interest require that all available equipment represented in this proceeding be utilized to supplement Pan American's services.

"4. The chief needs for additional air transportation services . . . lie on the terminal to terminal route of Pan American between Miami and Buenos Aires via the east coast of South America and to the following points: Tegucigalpa, San Jose, Trinidad, Balboa, San Juan, Barranquilla, Maracaibo, Cuba, Netherlands West Indies and British West Indies."

In selecting routes, he said, CAB should bear in mind the fact that the authorizations sought "are of a *temporary* nature, and are designed to meet a *temporary* need. In view of these facts we believe the routes should be awarded so as to require a minimum of duplication of services and expenses among the applicants."

Any extra service which can be provided by Pan American ought to be provided to South America on the route via the east coast, which carries a very heavy percentage of priority traffic, the brief said, adding that "it is believed that the Board, by permitting additional service by the applicants in this proceeding, will relieve Pan American of some of the strain under which it is now operating, and, to the extent of any relief provided in excess of the Caribbean needs not now being met by Pan American, will permit Pan American to intensify the Buenos Aires service both as to passengers and freight."

British Press Service

British Airliner: One of Britain's few modern transport designs, the de Havilland "Flamingo," is shown above. The 930-hp. Bristol Perseus engines give the plane a speed of 239 mph. and a range of about 1,300 miles, according to the British. The "Flamingo" is said to be much used by the RAF for communication and transport work.

Conroy Elected President of ATC

V. P. Conroy, vice-president of TWA, Inc., was elected president of the Air Traffic Conference of America at a two-day meeting in Chicago, Nov. 16-17. He succeeds D. D. Walker, vice-president of Chicago & Southern Air Lines.

Charles E. Beard, vice-president of Braniff Airways, was elected first vice-president, and N. B. Fry, of United Air Lines, was elected second vice-president. M. F. Redfern, secretary of the ATC, was honored with a reception in appreciation of his services.

Brazil-Uruguay Airline Opened

A new semi-weekly international air service was opened recently between Porto Alegre in southern Brazil and Montevideo, Uruguay. Planes at present carry eight passengers, but it is hoped soon to place larger transports in service.

Flying time on this new route is three hours and 35 minutes, for 500 miles. Alternate trips will be made by planes of the domestic Brazilian air line VARIGA, and the Uruguayan domestic lines known as LA PLUNA. Intermediate stops will be made at Pelotes, Brazil, and at other points as service requires.

El Paso Dedicates

In ceremonies held Nov. 15, El Paso, Texas officially opened its new air terminal building and field facilities to traffic.

XUM

EAL Air Mail Pay Cut $773,000 Yearl

CAB Issues First Pound-Mile Rate, Warns Company to Cut Passenger Fares

By ERIC BRAMLEY

ASSERTING that Eastern Air Lines has reached a stage where it is no longer obliged to depend on air mail pay to insure profits, the Civil Aeronautics Board on Nov. 10 set the carrier's mail rate at .3 mill per pound-mile, thus slashing $773,000 yearly from its compensation.

In its decision, which set a pound-mile rate for the first time in the airlines' history, the CAB praised Eastern's "high standard of managerial economy" and "exceptionally low operating costs," but at the same time warned the company that its passenger fares were too high in comparison with the rest of the industry.

CAB Member Harllee Branch disagreed with the rest of the members, claiming that the .3 mill rate was too high. The Board, he said, "by allowing such an excessive rate of profit on the carrier's mail operations . . . has . . . provided a government subsidy for a carrier which is no longer in the 'need' class . . ."

Under the .3 mill rate, which was made effective as of Oct. 1, 1942, Eastern's mail compensation for the next 12 months is estimated at $1,339,110. Added to the profit to be derived from commercial operations at the tariff rates now in effect, this indicates a total profit from the operation for the coming year of $3,196,891, or 33.49% on the total investment of $9,545,548 allocated to the scheduled air transport operations, after allowance for federal income tax now in force at the rate of 31%; and at a corporation income tax rate of 40%, the lowest so far approved by either house of Congress in the current tax bill, the profit after taxes would amount to 29.12% on this investment, CAB said.

The decision also for the first time attempted to allocate the carrier's expenses between commercial service and mail service—a step that is expected to result in many arguments pro and con.

In line with its Pan American-Grace rate decision, CAB decided not to recapture Eastern's past "excess" profits. The company's net earnings for the period from Nov. 30, 1939 to May 31, 1942 were $4,743,653.

"Since . . . the respondent has reached the stage of self-sufficiency, the Board will permit it to earn a return upon the excess earnings retained by it. . . . For the same reason, the Board will also place no restriction in its order upon the use to be made of these earnings by respondent. However, it is anticipated that, as in the past, excess earnings will be retained in the business for the development of air transportation, and that only reasonable dividends will be paid to stockholders."

Sounding its warning on passenger fares, CAB noted that for the 12 months ended June 30, 1942, Eastern's average gross passenger revenue per passenger-mile was 5.21¢ whereas the other three large airlines did not exceed 5.06¢, and the industry's average was 5.02¢. Eastern, the Board added, participated with all other carriers in abolishing discounts on July 1, 1942.

"If the effective rate increases of July 1 were eliminated in accordance with the national policy of avoiding any escapable increases in price or in charges for service during the war, and if respondent's rates were further reduced so as to bring the average revenue per revenue passenger-mile to 5.02¢, which was the industry-wide average . . . respondent's estimated profit, before mail pay, for the next 12 months, although substantially reduced from the levels hereinbefore indicated, would still be at least $2,082,000 before taxes.

"The matter of passenger rates cannot, of course, be acted upon in this proceeding, but we bring it forward for attention and it should have early consideration."

Weight Important

Explaining why the pound-mile rate was used, the decision said: "Weight is an important factor (and up to now the primary limiting one) in determining the amount of cargo that can be carried in aircraft; and the combination of the weight of cargo transported and the distance over which that cargo is carried has in general been the criterion of the volume of service rendered in transporting cargo by any means of conveyance.

"For many years the pound-mile has been used by the Post Office Dept., and other agencies dealing with air carrier statistics, as the index of the total volume of service rendered in the transportation of mail. It is upon weight, as the primary characteristic of the shipments transported, that commercial charges for the movement of goods generally are commonly based."

In setting Eastern's rate, CAB first compiled estimates of the carrier's operations for the next 12 months, as follows: revenue mileage, 11,854,692; non-revenue mileage, 238,279; total mileage, 12,092,971; revenue passenger miles, 165,965,688; average pay passenger load, 14.00; average fare per mile, 5.75¢; passenger revenue, $9,543,027; express and freight, $680,044; excess baggage, 160,323; miscellaneous, $56,378, or total *non-mail revenues* of $10,440,272.

Expenses Listed

Operating expenses estimated were: flying operations, $2,293,883; ground operations, $1,306,096; flight equipment maintenance-direct, $678,088; ground equipment maintenance-direct, $101,081; equipment maintenance-indirect, $229,574; passenger service, $671,497; traffic and sales, $725,599; advertising and publicity, $232,518; general and administrative, $346,273; depreciation-flight equipment, $478,156; depreciation-ground equipment, $83,442, or total operating expenses of $7,146,207.

In the estimates, indirect operating expenses directly attributable to scheduled transport operations were assigned to those operations and the remainder allocated between scheduled transport and war contract operations on the basis of the number of aircraft used. Ratio used was that in effect Aug. 31, 1942.

CAB said it recognized that in view of present improvements in design being incorporated in new planes, present equipment will have low residual values at the close of the war. Therefore, it based plane depreciation expense on a service life of five years with residual value reduced from 20% to 10%.

After estimating Eastern's expenses for the coming year, the decision allocated these expenses between commercial and mail services. This significant allocation follows:

Of $2,293,883 total flying operations expense, $2,034,674 was allocated to commercial service and $259,209 to mail service; $1,306,096 total ground operations expense was divided $1,193,508 and $112,588; direct flight equipment maintenance of $678,088 divided $601,464 and $76,624; direct ground equipment maintenance of $101,081 divided $[illegible] and $11,422; indirect equip[illegible] maintenance of $229,574 di[illegible] $203,632 and $25,942; passenger [illegible] ice of $671,497, traffic sales of $[illegible] 599 and advertising and publici[illegible] $232,518, all allocated entirely [illegible] commercial service; general and [illegible] ministrative of $346,273 di[illegible] $307,144 and $39,129; flight eq[illegible] ment depreciation of $478,156 di[illegible] $424,124 and $54,032; ground eq[illegible] ment depreciation of $83,442 di[illegible] $74,013 and $9,429.

Thus, total operating expens[illegible] $7,146,207 were divided $6,557,8[illegible] commercial service and $588,3[illegible] mail service.

Cost per pound-mile of comm[illegible] service was put at .182 mill w[illegible] mail service was .128 mill ([illegible] latter figure increased to .132 w[illegible] placed on a direct airport-to-[illegible] port mileage basis).

Rewards Carrier

Explaining why it was allow[illegible] the company a higher rate f[illegible] .132 mill, CAB stated that that fig[illegible] did not contain any profit, no[illegible] reward for honest, economical [illegible] efficient management.

Also, it stated, the mail rate fi[illegible] for EAL can properly bear m[illegible] of the cost than the minimum p[illegible] mitted by a weight allocation [illegible] tween commercial and mail ser[illegible] since it appears (1) that po[illegible] paid by users of air mail is in [illegible] cess of mail payments by [illegible] government to respondent, (2) [illegible] various operating practices are [illegible] posed on account of the mail se[illegible] ice which are not advantageou[illegible] the passenger service, (3) that [illegible] a pound-mile basis commercial [illegible] enues are substantially greater [illegible] the allocated pound-mile of m[illegible] service, and (4) that develop[illegible] of passenger service has contri[illegible] substantially to revenues.

In connection with (3) above, [illegible] Board pointed out that East[illegible] revenues for the five months e[illegible] May 31, 1942, reflect pound-[illegible] yields of .263 mill from passe[illegible] traffic and .298 mill from exp[illegible]

"On the basis of estimates [illegible] herein for the future, the [illegible] from passenger traffic, under e[illegible] ing tariff rates, would increas[illegible] .288 mill per pound-mile," the B[illegible] continued. "Unit earnings are [illegible] and . . . cannot be identical w[illegible] all rates.

"There is no support on the p[illegible] ent record, however and no [illegible] reason now apparent for a co[illegible] sion that earnings under a [illegible] which respondent has no powe[illegible] initiate for a service which res[illegible] ent is required to perform [illegible] be substantially less than its re[illegible] able earnings from other traf[illegible]

CAB asserted that in past [illegible] rate proceedings "when it has [illegible] peared to us that the air car[illegible] anticipated expenses repres[illegible] extravagance or poor manag[illegible] efficiency, we have scaled [illegible] estimates down to the level it[illegible]

(Turn to page 38)

Post Office Urges Lower EAL Mail Pay

Immediately following the setting of a .3 mill per pound-mile air mail rate by the CAB for Eastern Air Lines, the Post Office Dept. protested to the Board that the rate was too high. In a petition filed with the Board, William C. O'Brien, P. O. attorney, urged that Eastern's rate be set at 5c per airplane mile for the period from Dec. 1, 1939 to Dec. 31, 1941, and at .168 mill per pound-mile on and after Jan. 1, 1942. Under the 5c rate, the P. O. would be entitled to collect over $2,500,000 in "overpayments" from Eastern. O'Brien asserted that the .3 mill rate gives the carrier a profit of 69.6% upon that portion of its investment allocable to the mail services.

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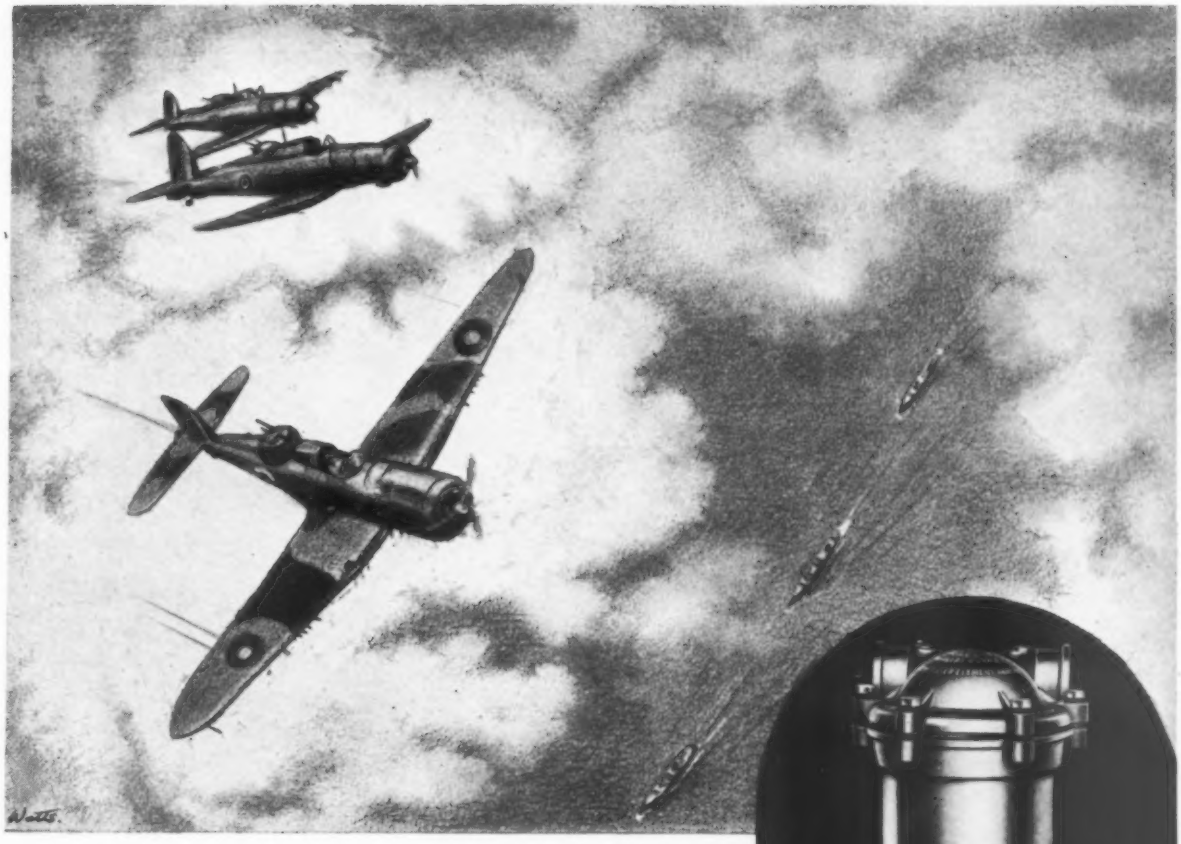

LOOKING FOR TROUBLE

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XUM

CAB Reduces American's Pay to .3 Mi

Will Receive Over $1,300,000 Less Yearly; Branch Calls Rate Too High

IN ITS second big rate decision within three days, the Civil Aeronautics Board on Nov. 13 announced that from Apr. 1, 1942, American Airlines will receive air mail pay of .3 mill per pound-mile.

This rate will result in American receiving over 1 1/3 million dollars a year less in mail compensation.

On Nov. 10, the Board had announced a .3 mill rate for Eastern Air Lines, cutting that carrier's yearly compensation by $773,000. (See story on page 30)

American, the Board said, has reached a state of self sufficiency and will, in the coming year, make a profit of $5,244,334 before mail pay and federal income taxes. Adding to this figure mail pay in the amount of $2,428,456 under the .3 mill rate, will give the company a profit of $7,672,790 before income and excess profits taxes.

At the same time, the Board explained that it had decided not to recapture American's "excess" profits. Under its former decision, which American succeeded in having reconsidered and which resulted in the Nov. 13 rate, CAB would have required the company to repay over $4,000,000 to the government.

CAB Member Harllee Branch disagreed with the other members on the American rate, claiming that it was too high.

As in the Eastern case, the Board urged American to give early consideration looking toward a reduction in passenger rates.

For the first time in a domestic airline rate case, excess profits tax—something new for "self sufficient" airlines to worry about—was mentioned.

After stating that American would realize profit of $7,672,790 in the coming year before income and excess profits tax, the decision said: "It should be noted that the Revenue Act of 1942, approved Oct. 21, 1942, provides that corporations are subject to a tax of 90% of that portion of their net income that is defined as excess profits net income and 40% of the remainder. Although the Revenue Code includes an exemption provision insofar as air carriers subject to the Civil Aeronautics Act are concerned, it appears that American, in view of its estimated net income, does not fall within the provision of that exemption and that a large part of its income will be subject to the 90% rate. However, due to the many ramifications of the law, the exact amount subject thereto cannot be ascertained at this time."

(The exemption mentioned above excludes from the tax "any corporation subject to the provisions of Title IV of the Civil Aeronautics Act of 1938, in the gross income of which for any taxable year beginning Dec. 31, 1939, there is includible compensation received from the United States for the transportation of mail by aircraft if, after excluding from its gross income such compensation, its adjusted excess profits net income for such year is zero or less").

In deciding not to recapture past "excess" profits, the Board said that "it will not be necessary for us to determine the amount of any excess profits earned by American during the pendency of this proceeding for the purpose of proposing restrictions upon any such excess earnings since . . . this carrier has attained a commercially self sustaining status and in accordance with the policy heretofore announced a carrier in such position will not be asked to provide any such restrictions."

Traffic Estimates

For the coming year, CAB estimated American's operations as follows: revenue miles. 24,605,062; nonrevenue miles, 558,535; total miles, 25,163.597; revenue passenger-miles, 356,773,399; average pay passenger load, 14.50; average fare per mile, 5.50.

Non-mail revenues were estimated as follows: passenger-scheduled, $19.622,536.95; express and freight, $2,193.420: excess baggage, $327,696.37; miscellaneous. $144,524.-88, or a total of $22,288,178.20.

Operating expenses were given as: flying operations, $4.593,765.08; ground operations, $3,059,013.64; flight equipment maintenance—direct, $1,473,843.21; ground equipment maintenance-direct, $179,197; equipment maintenance-indirect, $918,-505.20; passenger service, $1,447,-822.13; traffic and sales, $2,415,872.58; advertising and publicity, $465,696-.32; general and administrative, $1,-422,270.64; depreciation-flight equipment, $621,459.25; depreciation-ground equipment, $308,943.00; increase in mechanics' wages, $137,-456.05, or a total of $17,043,844.10.

These estimates resulted in a profit before mail pay of $5,244,334.10, or 21.31c per revenue mile.

In its decision, the Board went on record against the use of reproduction cost as a factor in rate making.

"This Board in exercising its rate making functions has never and does not now measure the reasonableness of the rate in terms of a fair return upon the so-called 'fair value' of the property used and useful in the public service," the decision said.

'Unsound'

"One of the primary factors, which is frequently controlling, in determining the fair value of such property is its reproduction cost less depreciation. We believe that experience has proved such method to be administratively and economically unsound; its application to public regulated enterprise during the past four decades has placed upon state and federal regulatory agencies a burdensome, complex, expensive and futile task . . . We believe that the ascertainment of the capital cost of producing the air transportation service requires that the rate of return should be predicated upon the funds which have been actually and legitimately invested in the transportation enterprise rather than upon any valuation of the carrier's property, and we shall continue to adhere to this method in the future as we have in the past."

After estimating American's expenses for the coming year, the Board allocated these expenses between commercial and mail services. Flying Operations expense of $4,-593,765.08 was allocated $4,159,194.90 to commercial service and $434,570.18 to mail service; ground operations of $3,059,013 was divided $2,842,962.84 and $216,050.80; flight equipment maintenance-direct of $1,473,843.21 was divided $1,334,417.64 and $139,-425.57; ground equipment maintenance-direct of $179,197.00 was divided $162,244.96 and $16,952.04; equipment maintenance-indirect of $[illegible] 500.20 was divided $831,614.61 and $86,890.59.

Passenger service of $1,447,[illegible] traffic and sales of $2,415,872.58 advertising and publicity of $[illegible] 696.32 were charged exclusively commercial service; general and administrative of $1,422,270.64 was vided $1,287,723.84 and $134,5[illegible] depreciation-flight equipment $621,459.25 was divided $562,[illegible] and $58,790.05; depreciation-ground equipment of $308,943.00 was divided $279,716.99 and $29,226.01, and increase in mechanics' wages of $[illegible] 456.05 was divided $124,452.71 and $13,003.34.

Thus, total expenses of $17,[illegible] 844.10 were divided $15,914,388.[illegible] commercial service and $1,129,[illegible] to mail service.

Cost per pound-mile of commercial service was .200 mill, and mail service .136, the latter rising .140 when placed on direct airport-to-airport mileage.

Explaining why the rate was at .3 mill instead of lower, the decision said: "While the allocated mail costs amount to .140 mill . other relevant factors must be considered in the formation of judgment as to the fair and reasonable air mail rate . . . for the allocated cost, in itself, will not be the sole and controlling measure of fair and reasonable rate as that is used in the Act.

Judgment Figure

"Such a rate cannot be a mathematical conclusion representing solely the cost of performing mail service under the allocation used herein, but must represent instead judgment arrived at through a consideration of costs and numerous other factors bearing upon the reasonableness of that rate, which we pointed out in our opinion in Eastern rate case. for the most part are not susceptible of mathematical evaluation.

"However, as pointed out in the case, since a comparison of earnings on the basis of a common denominator of service is an accepted standard of measuring transportation rates, the relation of the pound-mile earnings from passengers and property service on the one hand and mail service on the other is a pertinent subject for consideration.

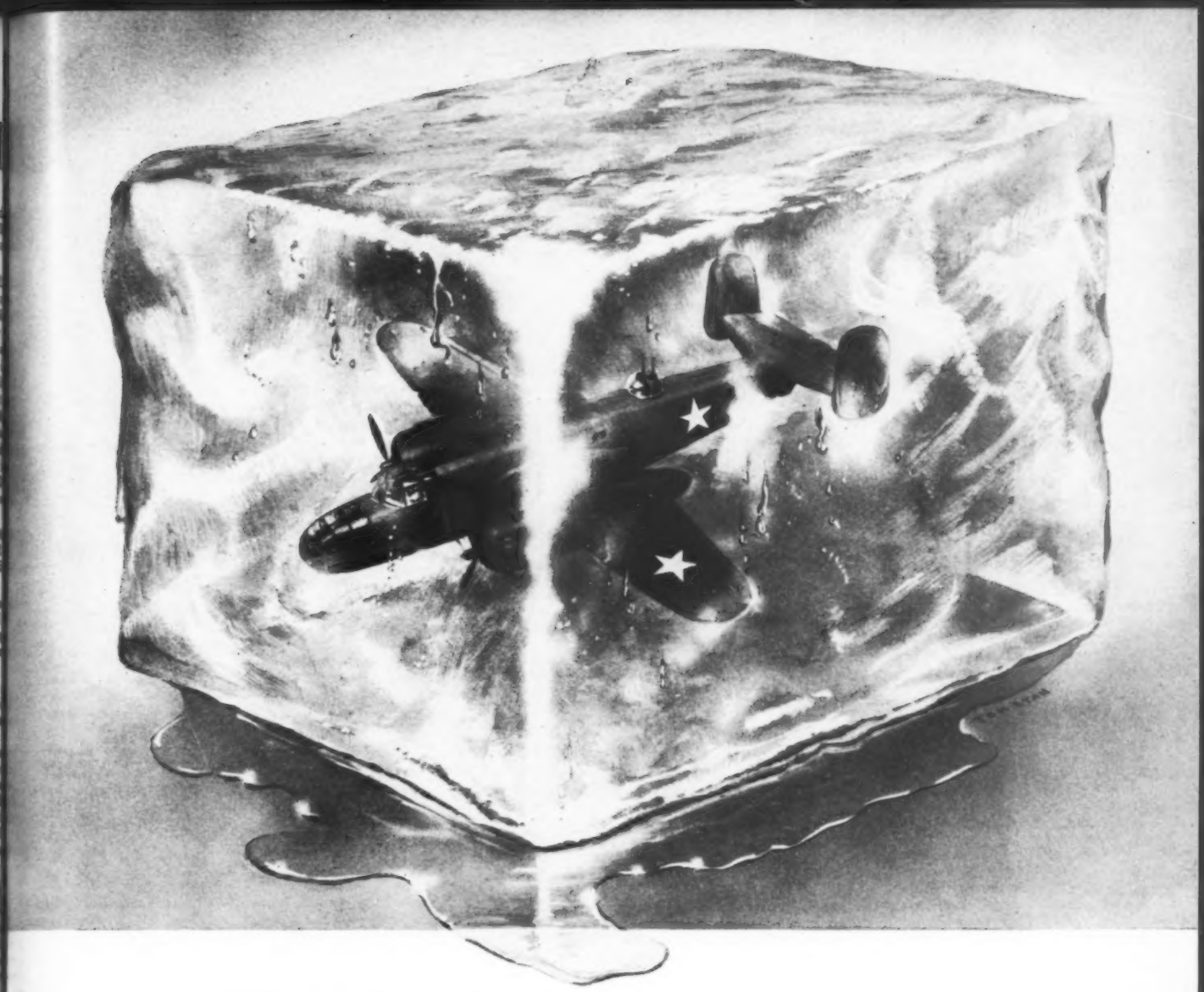
"American's revenues during the four months ended July 31, 1942, reflect pound-mile yields of .256 [illegible] from passenger traffic . . . and [illegible] mill from express traffic. On the basis of the estimates used here for the future, yields from passenger traffic under existing tariff rates would increase to .275 mill per pound-mile.

"Unit earnings are not and . . . cannot be identical under all [illegible] There is no sound reason for a conclusion that earnings under a rate which the carrier has no power to initiate for a service it is required

(Turn to page 38)

Tries a Glider: CAB Chairman L. Welch Pogue, left, visited All American Aviation at Wilmington recently and was passenger aboard a Piper glider when it was picked up by an airplane. Accompanying him was his assistant, Robert B. Bias, center. Pilot of the glider was Richard C. du Pont, president of AAA, which developed the glider pick-up technique from its air mail pick-up system.

Dr. Wilson: Col. T. B. Wilson, on leave as chairman of the board of TWA and now in charge of air, ship, rail and motor transportation for Gen. Douglas MacArthur, has been awarded the honorary degree of Doctor of Aeronautical Science by Iowa Wesleyan College. The award was made for his "distinguished service in the field of aviation education."



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Those late-1941 planes of ours were *good.* According to one theory of production we would have been justified in "freezing" the designs we had in production last December 7 and concentrating entirely on turning out those planes. But we don't work that way, nor do the Army and Navy work that way.

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That's why "North American Sets the Pace"—why our planes are selected for such missions as the first raid on Tokyo (North American B-25 bombers) or to bear the brunt of low-altitude fighting over Nazi-held Europe (North American P-51 Mustangs).

We are making these better planes so much faster that we passed our 1942 production quota months ago. But today, as always, the main idea of every North American employee is to make every North American plane the best bomber, fighter or trainer that can possibly be produced *at the moment* it is completed.

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NORTH AMERICAN *Sets the Pace!*

XUM

Frye Suggests U. S. Aviation Policy Including Thousands of Transports

'Several Million' Private Planes Also Urged

WITHIN 15 to 25 years after the end of the war, the United States should have an air fleet consisting of a compact, hard-hitting military aviation branch, a fleet of several hundred thousand transport planes and a fleet of several million privately owned aircraft, according to Jack Frye, president of TWA.

Expressing the opinion that the next big war after 1950, "if there is one," will be won by a knockout blow from the air that will effect a decision within a very short time, Frye states that all personnel engaged in the above activities should be thoroughly-trained military reservists.

Explaining why he formulated his "suggested aviation policy for the United States," Frye says: "I don't like to have to accept the generally prevailing public opinion (1) that our government war debt cannot be paid off; (2) that we must go through a terrible depression after the war, and (3) that we will have to accept social and economic changes in the future that will not permit the return of individual freedom and opportunity which, in my opinion, have made the average citizen of the United States more fortunate than the citizens of other nations.

"As a result of this thinking, I arrived at some conclusions as to how these things might be avoided."

The complete text of his suggested aviation policy follows:

'Important Tool'

"Aviation is the most important tool in the hands of the United States for postwar reconstruction and the future preservation of peace. Future peace can only be assured through the maintenance by this nation of an air fleet so powerful that no nation or group of nations will dare to attack.

"The United States should immediately undertake through its commercial airlines to provide an air fleet capable of transporting, first, the materials necessary in the prosecution of this war and, next, a fleet designed to carry the bulk of the nation's and the world's cargoes.

"The peacetime portion of this program, which would after its establishment be largely—if not entirely—self-supporting, should provide the United States undisputed domination of the air through its resulting superiority in research, design, materials, production, operation and personnel. It should in addition provide a new frontier for pioneering by the American people for the next 25 or 50 years that would inspire and uplift the spirit and morale of the entire nation to an extent that no other single program could.

"It would, together with its effect on all allied activity, provide employment of such magnitude as to absorb the millions of our citizens who have been dislocated as a result of the war. The development of the vast undeveloped areas over the globe through this use of the airplane should be of great benefit to all of the people of the world.

"Private flying should be encouraged, along with the continued development of our military aviation, so that as rapidly as possible—perhaps within 15 or 25 years after the end of the war—the United States would have an air fleet consisting of:

Lists Fleet

"(1) A compact, hard-hitting, specialized military aviation branch which should be equipped to utilize the most advanced offensive means that can by then be developed.

"(2) A fleet of several hundred thousand transport planes ranging in size from the feeder line planes carrying useful loads of perhaps 5 to 10 tons up to the globe circling leviathans of the air carrying possibly 2,000 tons.

"(3) A fleet of several million privately owned and operated aircraft which would by then be capable of immediate conversion for use of what we now call our infantry. These planes should be capable of cruising ranges of 4,000 to 6,000 miles, carrying two men and the equivalent of the present .50 caliber machine gun with ammunition and a 250-pound bomb.

"The personnel engaged in all of the above-outlined operations should be military reservists and should be kept thoroughly trained in the performance of their emergency military duties.

"Until that time comes in the future when we know that the possibility of war no longer exists, this entire air fleet should be closely coordinated with our military needs, so that in case of necessity it can be converted to such use overnight. Our transport bases the world over should be supplied and equipped to take care of such needs at a moment's notice. It should be so that enough of our transports cruising over the world could be called to the nearest bases and converted to their war duties and dispatched within a few hours, together with the strictly military fleet, to any scene of action, carrying enough destructive material to absolutely paralyze any nation on earth. Transportation, invasion and occupation of the enemy territory would then be completed by other transport planes and the fleet of several million private planes operated by military reservists called to active duty.

"The next big war after 1950, if there is one, will be won by a knockout blow from the air that will effect a decision within a very short time.

"It is entirely possible technically to produce the aircraft to do the job outlined above and to do it on approximately a self-supporting basis after it is fully developed and established. However, regardless of the cost, it would be cheaper t the maintenance of an equiva military fleet, in addition to many other benefits which are evident."

---

3 NWA Employes Killed

Clarence Bates, captain; Rob Raley, co-pilot, and Robert D. B radio engineer, all employes Northwest Airlines, were ki Oct. 31 in the crash of an A Consolidated B-24 at St. Paul port. The Army said "it wa routine test flight and the cause the accident is unknown." C Bates was the only survivor NWA accident several months

AIRLINE COMMENTARY

As predicted last issue, CAB included in the Eastern and American mail rate decisions a warning to those companies to lower their passen fares . . . Although this warning related only to Eastern and Americ the Board is definitely interested in the general passenger rate struct . . . One high government official emphatically states that a tariff duction at this time would create more goodwill toward the airlines t thousands of dollars worth of advertising . . . Whether the indus agrees with these sentiments remains to be seen . . . After many we of relative inactivity, the Board issued the American and Eastern cases—the two biggest on the docket—within three days of each . . . These were closely followed by a show-cause order on All Americ rate, and an examiners' report on routes into Washington. . . .

●

Asked what special preparations they are making to handle the Christmas air mail rush, Post Office officials shrug their shoulders . . . In many places, the airlines are carrying capacity mail loads now . . . So, if you don't mail your air mail letters and air express packages early, you'll have to expect delays . . . The days of innumerable Christmas extra sections are over, temporarily . . .

●

Incidentally, air mail is being left behind on some trips because of loads of priority passengers and express . . . Post Office officials natura don't like it, but they point out that there's nothing that can be done . They still insist that most of the mail is being carried when offered. . .

●

The last issue of AMERICAN AVIATION carried an excellent air map, taken from an American Airlines' advertisement . . . Some people are wondering, however, why Seattle wasn't shown . . . Seattle, a strategic point on any world air map (Seattle Chamber of Commerce please note) isn't served by American, and may have been overlooked for this reason . . . Even Seattleless, however, the map is excellent . . .

●

To sit in a Civil Aeronautics Board hearing and listen to Lowell Yer guiding genius of the great TACA system, testify about flying a ton nails here, two tons of silver there and two tons of chlorine somewhe else, is to get some small inkling of what the future holds for air tra within the U. S. . . . Last fortnight the Board heard oral argument the applications of seven airlines for Caribbean routes . . . Perso attending heard some of the best airline lawyers in the business ma wits . . . There was, and is, plenty going on behind the scenes in t Caribbean route situation . . . Maybe someday it can be told. . . .

●

No one was surprised when the Post Office Dept. protested that .3 mill per pound-mile was too much air mail pay for Eastern and American . . . One of these days, if given a chance to be heard, the Post Office may present a new argument to CAB for lower airline mail pay . . . Some people in the P. O. reason—and with all sincerity—this way: lower air mail rates for the airlines might eventually result in the P. O. informing Congress that it was economically feasible to carry all first class mail by air . . . Or, Congress might, with a little education, lower the air mail postage rate to three cents . . . Reaction to this argument, if presented, should be interesting . . .

●

"Rickenbacker found alive" were three words that touched off spo taneous rejoicing not only in Washington but throughout the U. S. . . The newspaper stories, cartoons, etc., following his rescue showed ho the nation feels about Eddie . . . Hats off to the Navy pilot and h radioman for a swell rescue job. . . .

XUM

The Man Behind the Man

BEHIND THE CONTROLS!

Like the man behind the man behind the gun . . .
he is the very backbone of America's fighting forces!

Training pilots for the Army Air Forces is the biggest part of our job now at Georgia Air Service, Inc.

Maintaining the ships those cadets fly is a vital part of training pilots . . . and an equally big responsibility.

For every pilot we have sent gloriously into the skies over Germany . . . Libya . . . The Solomons . . . there's an unsung hero who made it possible for him to fly.

We offer this open word of gratitude to our own mechanics, electricians, linesmen, and other aircraft maintenance specialists. We realize that each . . . is a man . . . behind the man . . . behind the controls!

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AIR SERVICE

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ATLANTA, GEORGIA

Flight Contractors to U. S. Army Air Forces, Bennettsville, S. C., and Jackson, Tenn.

Lessee-Operator Atlanta-Marietta Airport

EAL Rate

(Continued from page 30)

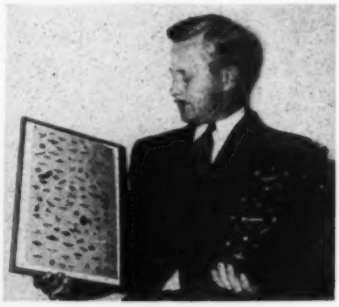
appeared to us to be a reasonable one under the Civil Aeronautics Act's standard of 'honest, economical and efficient management.'

"We are now confronted with the converse case of an air carrier maintaining operating costs below the generally established level . . . A substantial portion of the profit which we estimate that respondent will make will be directly attributable to exceptional economy and will constitute an appropriate recognition of such economy.

"It should be clear from what has been said that the fair and reasonable rate for the respondent's mail operation cannot be a mathematical conclusion representing solely the cost of performing the mail service under the allocation which we have presented, some of which are not susceptible of mathematical evaluation.

Branch stated that the majority of the Board "has completely failed to persuade me that this carrier is entitled to receive a mail rate which exceeds by .168 mill per pound-mile, or an estimated $750,000 annually, its costs in performing the mail service . . .

"It must be assumed that the policy which has been adopted with respect to Eastern will be extended to these other carriers (emerging from the 'need" class) and one must, therefore, conclude that, regardless of 'need,' all mail rates fixed by the Board in the future will provide an element of government subsidy. I do not feel that such a policy could be justified even in normal times . . . I am of the further opinion that, in the long run, the payment of excessive mail pay profits . . . from the federal treasury will redound to the serious disadvantage of the carriers, since it may tend to encourage inefficiency and wasteful financial practices."



12-Year Collection: C. E. McCollum, central region traffic manager for TWA in Chicago, holds part of his collection of aircraft and airline company insignias. McCollum has been pursuing his hobby since he joined old TAT in 1930. He has the insignias of many now-defunct airlines.

AA Rate

(Continued from page 34)

to perform in preference to other traffic which it might handle should be substantially less than its reasonable earnings from such traffic."

Branch's dissent was even stronger than in the Eastern case. "I am of the opinion," he said, "that the .3 mill rate for American is excessive and continues to provide an element of governmental subsidy to a commercially self-sufficient air carrier . . .

"Because this rate of .3 mill is more than double the cost of performing the air mail service; provides an operating profit before federal income taxes of 107%; provides a net profit on the mail service of 64.2%, after federal income taxes . . . and which, together with commercial revenues, will provide the carrier with an over-all net return of 35.9% on all its scheduled transport services after federal income taxes at the current rate, should, in my opinion, prove that it is an excessive rate of mail payment . . .

"I fail to see the logic in one government agency providing an excess profit in the mail rate and assuming that another agency of the government (the Bureau of Internal Revenue) may recapture some portion of such excessive profits . . .

"Instead of paying out an element of subsidy in the mail rate to a commercially self-sufficient carrier . . . it seems to me that much sounder and wiser policy would be for the Board to authorize the expenditure of this public money in establishing additional air transportation service so that the benefits of air transportation could be brought to an ever wider group of users."

American Opens San Diego Line

American Airlines on Nov. 22 augurated scheduled service San Diego, Cal., on its route tween Phoenix and Long Beach.

CAB granted the company necessary permission after Secretary of the Navy informed Board that "because of activities and near San Diego . . . clo related to the war effort, improv transcontinental air transporta service to and from San Diego necessary in the interest of national defense."

Two flights daily are operat westbound trips departing from S Diego at 9:10 A.M. and 11:39 A eastbound trips leaving at 12 P.M. and 4 P.M.

The new flight schedule means t addition of one transcontinen round trip and the augmenting another serving the west coast, a cording to American.

Meatless Tuesdays

Every Tuesday will be a meatl day for those served while flyi on American Airlines, according the company.

Order Today! **AEROSPHERE • 1942**

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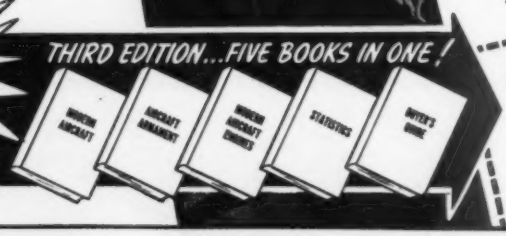
2 Extras well worth having! A NEW SECTION ON *AIRCRAFT ARMAMENT AND ARTICLES ON THE U. S. WAR EFFORT



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Gentlemen: Check is attached for The New AEROSPHERE • 1942 in quantity indicated. PLEASE RUSH!
10 copies☐ 5 copies☐ 1 copy☐ *Send descriptive literature*☐
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Ideal Christmas Gift for your employees and friends and relatives entering the service.

New PIPER AMBULANCE PLANE

Serving U.S. Navy

Famous Piper economy and dependability now step forward to serve the Navy . . . in this ambulance of the air!

The Piper HE-1 Ambulance Plane is a conversion of the regular Piper J5C Super Cruiser. The principal change is a hinged turtle deck that lifts upward to accommodate a Navy standard litter.

The new plane is powered by a Lycoming 100-horsepower engine, which combines with sound Piper design to give it amazing take-off and climb . . . and a speed in excess of 100 m.p.h.

Traditional Piper characteristics make this Ambulance Plane ideal for carrying out missions of mercy for the Navy. Thus Piper, famous for pointing the way to wings for all America, now points the way to fast, economical transportation of wartime victims . . . vital transportation that promises to save many American lives.

PIPER AIRCRAFT CORPORATION
LOCK HAVEN, PENNA.

Here we see the turtle deck opened to accommodate the patient. Note how the patient is securely strapped in the Navy standard litter to prevent any further injury due to movement while in flight.

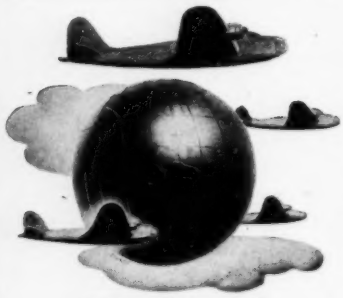
The new Piper HE-1 is another of the famous CUB line.

ONE-THIRD OF ALL THE REGISTERED PLANES IN THE U.S. ARE PIPERS

Uncle Sam Collects

Under the new tax schedule, Uncle Sam now collects 10% on all airline fares. The new tax, an increase of 5% over last year, became effective Nov. 1.

CAP Couriers: When an important war plant in Reading, Pa., had a production line tie-up recently because it lacked a small package of parts, a plane dispatched from CAP's courier station nearby made delivery of the missing parts the same day. CAP reports its courier station at York, Pa. is still "highly active," and that a similar unit is being organized at Allentown. Cleveland, Ohio's unit started operating the week of Nov. 1st.



The Voice of
AVIATION

Radio and Aviation have grown hand in hand—dependent on one another! Pioneers in both fields realized that successful aircraft operation, in peace or war, demands efficient *communications*. Frank Melville has given his time and energy to the development of Melville Aeronautical Radio School because he foresaw that the nation would need a dependable source of training men and women in radio communications for America's planes—first for Victory, then for Progress.

MELVILLE
AERONAUTICAL RADIO SCHOOL, INC.
45 West 45th Street New York City
Training Men & Women for Radio in the Service of
AIRLINES - ARMY - NAVY - MARINES - MERCHANT MARINE - COAST GUARD - INDUSTRY

African War Shifts Export's Operations

Present military operations have made it necessary for American Export Airlines to operate its westbound, as well as eastbound, trans-Atlantic trips from Foynes to New York via Bermuda.

Formerly, westbound flights had been scheduled via Bathurst, Gambia, and Port of Spain, while eastbound operations were via Bermuda.

In granting the carrier permission to make the shift, the Civil Aeronautics Board explained that the Navy Dept. had "requested and ordered" Export to operate westbound via Bermuda.

"Notwithstanding the small payload possible on flights westbound between Foynes and New York via Bermuda it is in the public interest that trans-Atlantic operations by the carrier be conducted to the fullest extent possible in view of the need for service across the Atlantic Ocean," CAB said.

The authorization will continue until flights via Bathurst and Port of Spain are again feasible, "but in no event shall this authorization continue beyond May 31, 1943."

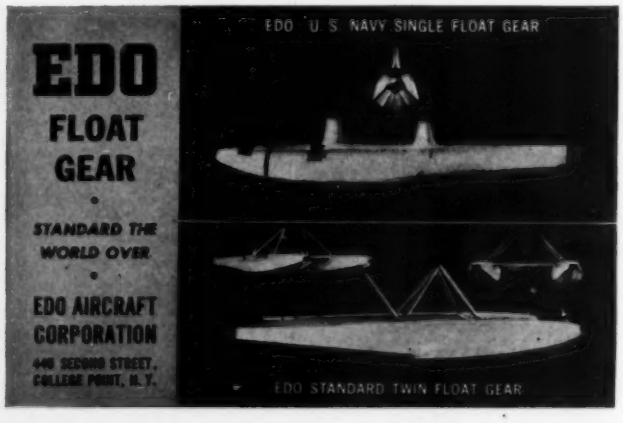
Traffic

Trans-Canada Air Lines reports its overall load factor for September was 83%, "the highest on record." In August, it was 81.7%, and in July 79.3%. TCA's planes are now flying 22,670 miles a day.

Air Express Division, Railway Express Agency, states its shipments during August totaled 2,048,085 lbs., 81.1% more than the 1941 month, and "the highest monthly total in the 15 year history of the service." Shipments in August amounted to $116,257, 4.4% more than in August of 1941.

Message Dropper

Because relatively few aircraft have two-way radio communication, Indiana wing of CAP has ordered all planes to carry two half-pint ice cream containers (cylinderical type, with lid) for dropping messages. A five foot strip of yellow cloth is attached to each container to increase visibility. It is believed this method will be of "vital importance" in emergencies.



Actions of the Civil Aeronautics Board

Order No. 1993, Oct. 19, 1942: Directed that, on and after Oct. 1, 1942, rate[s] transportation of mail on Eastern Air Lines, Inc., would be fixed at .3 mill[s] pound-mile of mail carried, computed on direct airport-to-airport mileage.

Order No. 2001, Oct. 28, 1942: Further postponed effective date of Amend[ment] No. 15-1, regarding certain air carrier lights and mechanisms, until Jan. 1, [19] because equipment is not yet available.

Order No. 2004, Oct. 30, 1942: Authorized Pan American Airways, Inc., to [ser]Ketchikan, Alaska, through the use of Annette Island Airport, effective Oct. [1] 1942, and notwithstanding PAA's failure to comply with Sections 233.3 and [2] of CAA's Economic Regulations. Such compliance would have disclosed infor[ma]tion affecting national defense.

Order No. 2008, Nov. 2, 1942: Revoked student pilot certificate No. S-247928, [held] by Herbert T. Miller, for allegedly operating aircraft with dual controls connec[ted] and without being qualified to operate them, for piloting aircraft without air[craft] identification card, and other violations of CAA Regulations.

Order No. 2009, Nov. 2, 1942: Suspended for six months student pilot certific[ate] No. S-450024, held by Stanford N. Straber, for performing "acrobatic maneuv[ers] including snap rolls, stalls and spins, and vertical turns at an altitude of [less] than 1,500 feet" near Anderson Airport, Anderson, Ind.

Order No. 2010, Nov. 3, 1942: Exempted American Airlines, Inc. from such pro[vi]sions of Section 401(a) of the Act (1938) as would otherwise prevent this car[rier] from rendering service to and from San Diego, Cal., as an intermediate po[int] between Phoenix, Ariz., and Long Beach, Cal., on route No. 4, and directed [the] airline to furnish the Board with a monthly breakdown of traffic carried on [the] run.

Order No. 2011, Nov. 4, 1942: Revoked student pilot certificate No. S-172580, [held] by Hiram E. Mozley, Jr., claiming that Mozley at various times flew over a [re]gested area of Miami Beach, Fla., at an altitude of less than 1,000 feet, and [that] he also flew "within a military restricted area."

Order No. 2012, Nov. 4, 1942: Restricted student pilot certificate No. 267305, [held] by LeRoy L. Vizneau, so that he can pilot aircraft, for a period of one year, [only] while "receiving instruction . . . while making check flights . . . (with) instruc[tors] . . . or while piloting aircraft on military duty". CAB claimed Vizn[eau] committed a series of violations in the vicinity of Clark's Lake, Mich.

Order No. 2013, Nov. 4, 1942: Granted approval to William H. Coverdale, [pres]dent and director of American Export Airlines, Inc., and American Export Lin[es] Inc., to hold simultaneously positions of president and/or director in [seve]other steamship and railway companies.

Order No. 2014, Nov. 5, 1942: Approved agreement between Inland Air Lines, [Inc.] and Western Air Lines, Inc., concerning lease of Lockheed Lodestar airplanes.

Order No. 2015, Nov. 5, 1942: Denied petition of Pennsylvania-Central Airli[nes] Corp., which requested the Board to suspend action on applications of East[ern] Air Lines, Inc., and Transcontinental and Western Air, Inc., for certificates [of] public convenience and necessity.

Order No. 2016, Nov. 6, 1942: Amended Order No. 1893, issued Aug. 17, [19]affecting private pilot certificate No. 32078-40, held by Lyle Hayhurst, so that [Hay]hurst may pilot aircraft "only while receiving instruction or making check flig[hts] . . . or while piloting a civil aircraft on military duty" during the six mon[th] period extending from Aug. 27, 1942.

Order No. 2017, Nov. 9, 1942: Approved the holding by Joseph A. Zock[ey] directorships in both Mid-Continent Airlines, Inc., and Lawrance Engineer[ing] and Research Corp.

Order No. 2018, Nov. 9, 1942: Denied petition of Pennsylvania-Central Airli[nes] Corp., which requested the Board to suspend applications of United Air Li[nes] and Transcontinental and Western Air, Inc., for certificates of public convenie[nce] and necessity, until after the war.

Order No. 2019, Nov. 9, 1942: Suspended for 60 days mechanic certificate [No.] 16137, held by Earl W. Riggs, for certifying an aircraft as airworthy when it "[was] not in condition for safe operation."

Order No. 2020, Nov. 9, 1942: Approved agreement between Pan American Air[-]ways, Inc., and American Export Airlines, Inc., relating to passenger traffic int[er]change arrangements.

Order No. 2021, Oct. 29, 1942: Denied petition of Chicago and Southern Air Lin[es] Inc., for reconsideration of Order No. 1991, issued Oct. 22, 1942, involving a U. [S.] terminal for Pan American-Grace Airways, Inc., and denied requests for furth[er] consolidations with that proceeding.

Order No. 2022, Oct. 29, 1942: Denied petition of National Airlines, Inc., [for] reconsideration of and oral argument upon orders of the Board, Orders No. [19], issued Sept. 10, 1942, and Order No. 1991, issued Oct. 22, 1942, relating to con[-]solidation of other applications with proceeding of Pan American-Grace Airway[s] Inc.

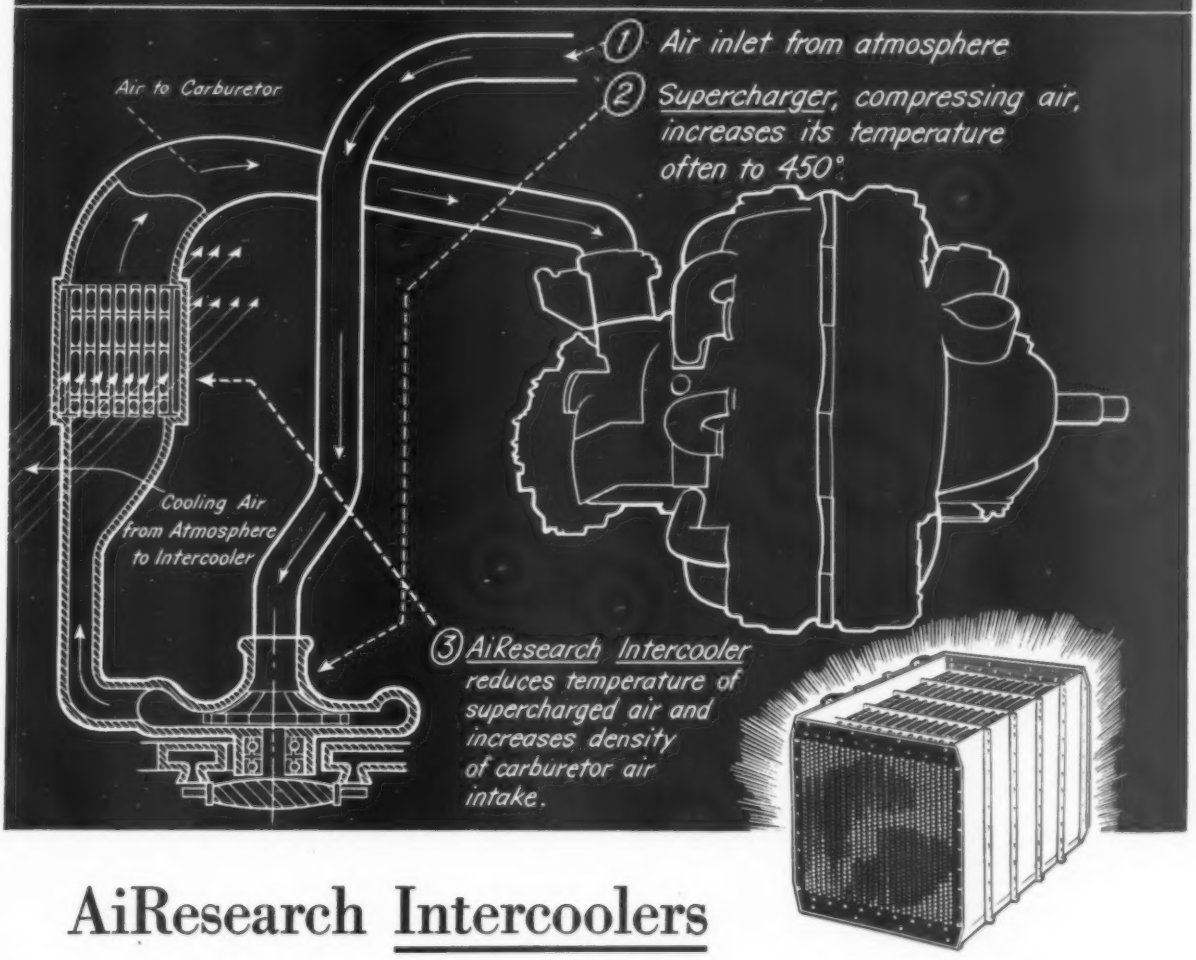
Order No. 2023, Oct. 29, 1942: Denied petition of TACA, S.A., for reconsidera[tion] of and oral argument upon the consolidation clause of Order No. 1991, as [ex]plained above.

Order No. 2024, Oct. 29, 1942: Denied petition of Eastern Air Lines, Inc., for [re]consideration of and oral argument upon the previously mentioned consolidat[ion] clause of Order No. 1991.

(Turn to page 47)

XUM

UP goes the airplane's critical altitude...


1 Air inlet from atmosphere
2 Supercharger, compressing air, increases its temperature often to 450°
Air to Carburetor
Cooling Air from Atmosphere to Intercooler
3 AiResearch Intercooler reduces temperature of supercharged air and increases density of carburetor air intake.

AiResearch Intercoolers

help U. S. engines get *more* from their superchargers

The extreme heat of supercharged air causes detonation, reduces engine efficiency. It decreases the weight of the mixture delivered to the engine—thus reducing the critical altitude of the power plant.

To improve the control of supercharged air temperatures, our engineers developed the AiResearch Intercooler. Thoroughly test-proven in AiResearch laboratories, these Intercoolers are now in use in thousands of American airplanes...helping their power plants deliver *added useable power at critical altitudes.*

The AiResearch Intercooler is very *light in weight.* It is manufactured of heat-treated aluminum alloys. The entire assembly is anodized for protection against corrosion. Tubes are mechanically fastened and are jig-assembled to assure ruggedness.

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AiResearch Intercoolers offer utmost flexibility. They are available in flattened or round tubular units. Tests of tube spacing and arrangements prove their adaptability to varied requirements of shape and size.

Aircraft manufacturers interested in the advantages of these Intercoolers are invited to write or wire for details.

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Airline Personnel

In the Services

Theon Wright, director of public relations for TWA, has joined the Army as a major in the Services of Supply, attached to the chief of transport (Col. T. B. Wilson, chairman of the TWA board) in the Southwest Pacific area.

Laigh Parker, former vice-president-traffic of Delta Air Lines, has been promoted from major to lieutenant colonel by the Air Forces.

A. Patten Wilson, district traffic manager of Trans-Canada Air Lines' New York office since establishment of Toronto-New York service, has been granted leave of absence to accept appointment as Pilot Officer, Intelligence Division, Royal Canadian Air Force.

Traffic and Sales

Harper McNeill, Trans-Canada Air Lines' traffic representative, has been promoted to district traffic manager in New York, succeeding A. P. Wilson, on leave with the RCAF.

Miscellaneous

Carl Edward Schulz has been named personnel director of Chicago & Southern. He came to C&S from Boaz, Allen and Hamilton, Chicago management engineers, where he was staff engineer handling executive personnel, job analysis and organization problems.

Leo J. Boyle has been named central publicity director of American Airlines in Chicago. He has been serving as the company's assistant publicity director in New York.

Joseph A. Ferris, Northwest's director of public information, has been elected president of the newly-formed Northwest Industrial Editors Association, which covers publications printed and edited in Minnesota, North Dakota, Montana and northern Wisconsin.

How to get into Aviation—Now

by C. S. (Casey) Jones

NO. 2 *in a series of advertisements describing the free training and opportunities now available in aviation. Addressed to the thousands of men and women who wish to prepare themselves for war service in this key industry.*

C. S. JONES

Vocational and high schools throughout the country, with few exceptions, are now offering one or more courses to trainable and employable persons from 18 years of age up, under the War Industries Training Program. Tuition is free. Following are typical courses:

(A) *Retraining Courses*—for unemployed persons who have had industrial experience of a kind which will make it possible for them to prepare for a new (related) job in a short time. 30 to 40 hours of training per week.

(B) *Refresher Courses*—for unemployed persons. 30 to 40 hours per week.

(C) *Pre-Employment Courses*—for unemployed beginners. 30 to 40 hours per week.

(D) *Supplementary Courses*—for employed persons in war industries to train for better jobs. 6 to 10 hours per week.

(E) *Conversion Courses*—for employed persons who wish to get into war industry. 15 hours of training per week.

• • • •

Courses in *aircraft maintenance* include Aircraft Engines, Aviation Mechanics, Aircraft Instruments. Courses in the *building of aircraft* include: Sheet Metal Work, Riveting and Assembling, Final Airframe Assembly, Mock-up, Layout and Inspection.

• • • •

Many or most of the courses are open to both men and women. Any person of 18 years up, who is trainable and employable, may enroll. For further information, apply to your nearest vocational school, high school or local office of the U. S. Employment Service.

C. S. Jones
President

ACADEMY OF AERONAUTICS, *La Guardia Field, New York City* · CASEY JONES SCHOOL OF AERONAUTICS, *Newark, N. J.*

Engineering and Design courses still open for private enrollment to qualified applicants. Mechanics courses devoted exclusively to military and government contract training.

Training the Key Men of Tomorrow in Aviation

Washington Routes

(Continued from page 1)

not be, in which carrier the passengers use after leaving PCA's route.

"Should only one additional transcontinental be permitted to serve Washington, the advantage would be harmful to the carrier denied entrance into that city. This advantage would be especially profitable to the favored carrier between Washington and points served by both United and TWA and would enable that carrier to divert from the established business of its competitor by new connecting services to points on the other carrier's route."

Discussing diversion from other carriers, the examiners stated that Northwest Airlines would be subject to potential diversion of about $34,200, or about 1.59% of its 1940 total system passenger revenues. This diversion, they claimed, "is so slight that it could not possibly impair the future operations of Northwest."

6.25% Diversion

On the basis of its experience for the four months ended Apr. 30, 1941, $238,770.55 of PCA's annual passenger revenue would be subject to diversion, or 6.25% of its estimated annual system passenger revenues, or 9.49% of its estimated annual passenger revenues for route 14 (Norfolk-Detroit), the report said.

"These diversion figures make no allowance for the retention of any of the interline business involved in this proceeding, increased traffic induced by the new services, the traffic which the proposed routes would contribute to PCA's existing system, or the normal increase in air traffic generally, the development of the traffic potentialities on PCA's comparatively new routes 51 and 55, or the availability of additional space for local traffic on the densely populated and excellent traffic producing route 14.

"It is entirely probable that any diversion which the inauguration of the proposed services might cause would be completely absorbed by use of the diverted space for increased local traffic."

The existence of PCA's route 14, the report stressed, "should not permanently prevent the improvement in the service furnished to the major east-west traffic flows into and out of Washington in view of the importance of that improvement and due to the fact that the inauguration of such additional east-west transcontinental services would not impair the economic justification of either route 14 or PCA's system."

The examiners claimed that American's total potential diversion would be about $320,000, or 2.02% of its total 1940 system passenger revenues. "Since American's system is an extensive one, the traffic flows which would be *subjected* to diversion . . . would represent a comparatively small proportion the system's potential traffic."

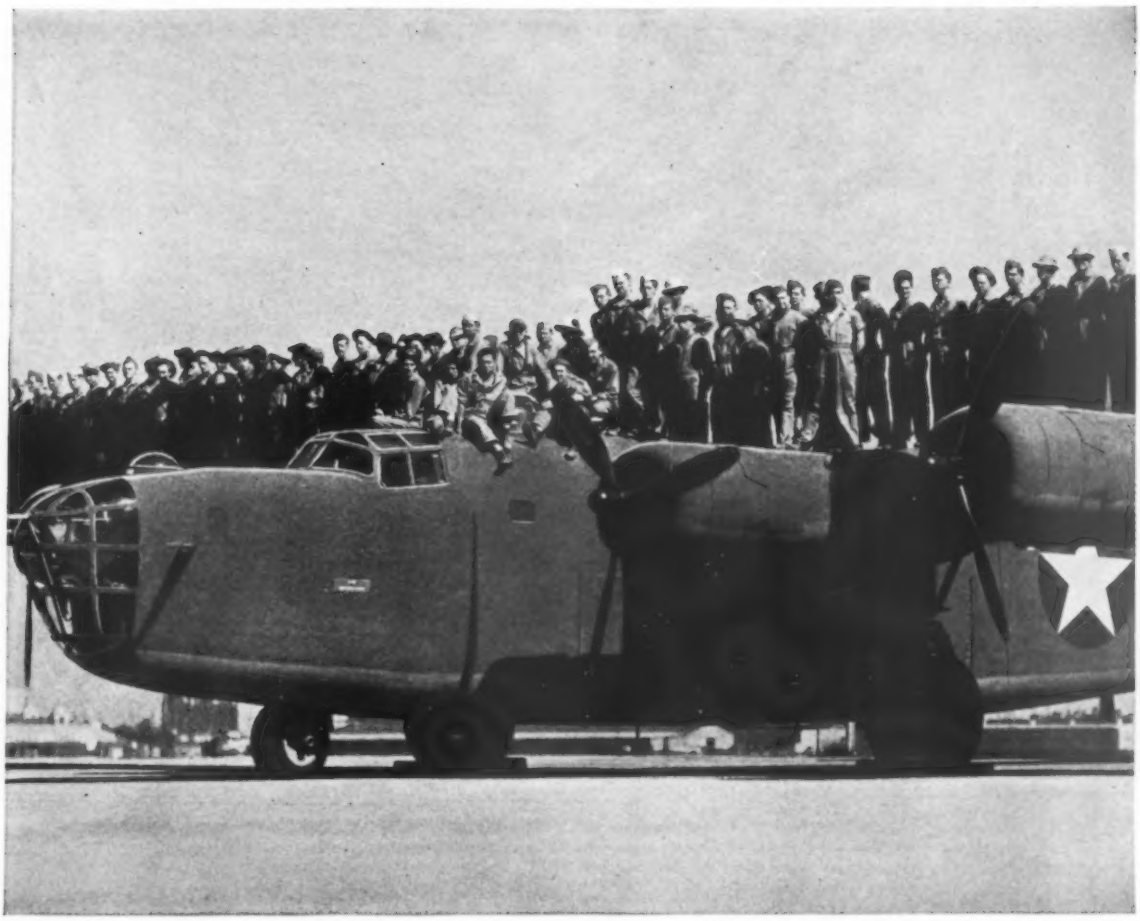
While the inauguration of e or both of the proposed services divert revenues from PCA American, "such diversions will seriously impair the operations these carriers as to warrant denial of the applications of that count alone. Furthermore, w such diversions may possibly crease the amount of mail comp sation required for certain exis routes to comply with the provi of section 406(b) of the Act, t is an offsetting possibility in such case that the amount of m pensation needed on other alr existing routes might be reduce the beneficial effect upon their t fic volume and upon the com tions provided by the new ro In the present case it appears likely that the establishment either or both of the propo routes would have any very s stantial effect upon the total vo of mail compensation required all existing routes.

Competition Helpful

"Since the Board is expr directed to consider *future* nee commerce, the postal service the national defense, the import of the Act's developmental obje . . . stands out most clearly. of the most effective aids to courage such development is th auguration of competition when the Board's judgment, compet will stimulate benefits to the pu in the shape of improved serv which must inevitably lead to vances in the technique of air tra portation. Air transportation is in a stage of rapid development expansion. Its possibilities are from being exhausted and no can safely predict the course w its future development will take is of greatest importance, there to maintain a properly balanced tem of air transportation in t section of the country in orde encourage constructive competi . . . Carriers should not be preve from inaugurating improvem solely as a protection to a parti carrier or carriers where lac competition may retard rather assure the development of an a quate air transportation system The public interest is always pa mount to the private interest of particular carrier or carriers, p ticularly where, as in this proce ing, the operations of existing c riers will neither be jeopardized seriously impaired by the inaugu tion of competitive service."

According to the examiners' es mates, United would lose $25 before mail pay during the fi year of operation between Th and Washington, while TWA's on Dayton-Washington would $334,000. Capital expenditures w estimated at $43,430 by TWA $25,375 by United.

XUM



★ *These men standing on the wing of their big Consolidated Liberator were formerly plumbers, druggists, clerks, garagemen, farmers. Now they've finished their training at Camp Consair and will soon scatter to overseas bases of the Army Air Forces to take their places as skilled mechanics in bomber ground crews.*

PROBLEM:

It takes a lot of men on the ground to keep a big Army bomber like the Consolidated B-24 Liberator in the air.

Long ago, the Army Air Forces realized that their ground-crew training program must be greatly speeded up. What's more, they urgently needed actual bombers for instruction purposes.

But they knew that each bomber, held back as a ground-crew "classroom," meant one less bomber in action against the Axis. *The bombers simply couldn't be spared!*

SOLUTION:

Consolidated brought the boys to the bombers!

Almost overnight – before the first 500 boys arrived – the company built Camp Consair, complete with barracks, mess halls, and classrooms.

Here, on a three-shift basis, for a 28-day school period, the boys of the AAF Technical Training Command are now taught to maintain the very bombers they will later service.

The bombers themselves, as well as the tools, equipment, and manuals, are provided by Consolidated. The instructors are the men who built the bombers.

The boys are taught to tear down and reassemble the engines. They learn the intricacies of the power turret assemblies, the landing gear, the hydraulic system, and the electrical installation. In short, when they leave, they know their plane forward, backward, and blindfolded!

Consolidated, who believes that its responsibility does not end when a bomber rolls off its assembly line, is proud that it can make this important contribution to the training of Army Air Forces personnel.

CONSOLIDATED builds Battleships of the Air

LIBERATOR . . . CORONADO . . . CATALINA

Manufacturers' "Know How" Vital to Line

Incomplete Engineering Data A Built-in Delay, Writer Claims

By E. J. Foley

THE future air transport expansions may literally hang upon a scrap of paper. Inadequacy or inaccuracy or vagueness of aircraft manufacturers' engineering data can tie up operations just as tightly as the lack of a captain, unavailability of fuel and the like. Again we say—airliners are *not* expendable.

Even if we achieve our goal of an airplane that is a transportation vehicle pure and simple, we are still a long way from eliminating those inherent qualities in our transport medium—stress, weight, etc.,—which make it an ineffective, even inoperative unit, unless the "book of instructions" is handy, clear and complete.

Lest aircraft manufacturers forget, the data which they supply to the operator in one form and another with each aircraft contract does not go into cold storage in a vault. Once they button up the contract, *they* may almost look on the aircraft as a closed book, but in the operator's offices that book is just about being opened. Have you ever seen the consternation that can reign over an airline maintenance base for months after service initiation on a new model? Schedules are missed and not by minutes; mechanics walk up and down the backs of the engineering staff screaming for drawings; inspectors whistle and tap their fingers waiting for data on cowl flap openings, etc. The whole show may be pretty grim. This built-in ground time is an extravagance—as expensive as it is annoying; yet we are sure it can be corrected in time.

E. J. Foley

As mentioned above, these data, "this book of instructions," are not dead-filed; they are active daily; they must permit ready "thumbing." They go to make up the know-how on the specific design which permits the airline operator to re-do everything that the manufacturer did in making the product. If they fall short in performance of this function, this failure approximates a design error in its effect on the operator. Call them trifles if you will; but these trifles have done much to make or break a manufacturer's service reputation in the air transport operator's eyes.

From these considerations, we may conclude that manufacturers' engineering data should have as a standard for preparation their applicability to active use by the operator. They should not simply be done well enough to manufacture the airplane. They must take into consideration the basic differences in organization and manpower allocation between manufacturer and operator. Specialization and detailed liaison activity are only partially applicable to airline operators; we agree that their application, so far as is economically practical, is extremely desirable.

But we must remember that there can never be equaled in an airline the personal engineering coverage that the manufacturer provides in liaison form. In short, engineering data should be designed to serve the air transport operator, first; then it will automatically include those points essential for manufacture.

Our concept of engineering data as it should be, necessitates three prime considerations: Consistency, Adequacy and Accuracy. Here is another "C.A.A." that should exercise a regulatory effect upon the aircraft manufacturers' engineering data presentations.

For purposes of discussion, we will indicate samples defining "engineering data presentations"; drawing reproductions, stress analysis, weight data, test reports, templates, tables of ordinates, simplified diagrams, maintenance manuals and the like.

Applying consistency, accuracy and adequacy under present personnel turnover and production pressure conditions presents an extremely difficult problem to the manufacturer. This we feel to be generally realized and we offer our suggestions, in large, as applicable to and necessary for the future. Without appearing repetitious or "picky," we wish to convey the thought that before condemning a man or an industry for being "as small as the things that bother him," we've got to stand back and see the major complications induced by these "small things," tremendous trifles.

Consistency as applied to our "book of instructions" is the basic characteristic of the three. In that it insists upon all like things being done alike, we can legislate its guarantee in the form of standards followed by careful checking. In general, it can be said that with few corporate exceptions, consistency in drafting practice is satisfactory. In report writing, stress analysis, tabular compilation of data and the like, there is more to be done. The technique for doing appears to be the same as in drafting and we are sure that stabilization of personnel and the industry as a whole will permit achievement of near perfection.

Accuracy is a factor which should deal with more than dimensions and specific values. Unless it attends drawing numbers, reference numbers and page numbers with the same degree of care, the detail correctness embodied in the may never be seen, let alone appreciated. No drawing number can be less of a distraction than wrong number.

Where we have 10,000 drawings indexed, numerically and by assemblies, the primary accuracy *must* be in the index. The consideration given to the errorless preparation of this "guide" determines its practical value to the operator who when he needs data needs it *yesterday*.

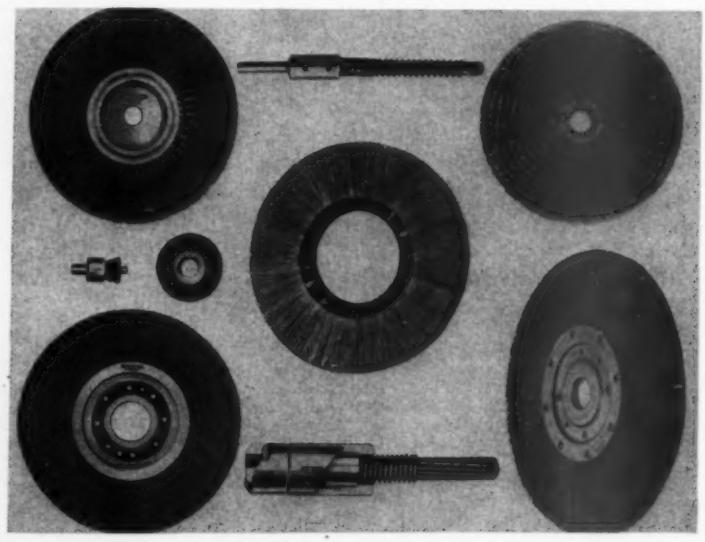
To assure total accuracy, we must give place to a subheading. The importance of clarity in preparation is only a part of the story; it implies good draftsmanship, typing, etc. These set us on the right road but their initial value may be discounted to nothingness by the necessary process of reproduction. We've all seen dimensions like 13¼" that was really 7¾"—on the blueprints that obscured important contours, specific notes. In our conversations with manufacturers' engineers we've been told point blank that qualified engineering inspection of the data will reveal the right story even through blurs, etc.

Clarity Necessary

In 90% of such cases, we agree that statement holds water. But we think it a "luxury" due the operator to be able to assume clarity in reproduction in his hurried look for data. Trifle? Maybe, but one of those tremendous cumulative things that observed at long range can cost the airline operator the full price of an airplane in a few months. Some items of expense are intangible extravagances—attributable to a specific cause but impossible to eliminate without cooperation from manufacturers.

Adequacy of information is the third requirement in our case—the most important and the most frequently neglected in principle and practice. Let's take one specific example. We've followed a subassembly from the rough casting through the finishing to installation. The next move in our assembly is the rigging, but the assembly drawing provides no reference "next assembly" number; the major assembly and installation index is incomplete regarding this item and we're up against a stone wall. Here is a specific, detail inadequacy that under pressure can cost days of time—not only for the man hunting but for the four or five or ten men marking time until installation specifications can be determined.

We mentioned the drawing index twice previously in this treatise and this is not undeserved attention.



Used in Engine Production: Here are nine of the brushes used in aircraft engine production as manufactured by Osborn Manufacturing Co., Brush Division, 5401 Hamilton Avenue, Cleveland, O. Top row, left to right, Disc Center Wire Section with surface speed of over 10,000 feet per second; cable and brush; Riehl section wire brush with high face density. Center Row: bonding brush for cleaning burrs; ringlock steel wire section for casting buffing; treated Tampico section for tool mark removal. Bottom row: Osborn Master Wheel; weld cleaning brush; monitor section wire brush.

the table of contents for a large part of our book of instructions and its importance is frequently underestimated. Spare parts, capable maintenance organization, high speed servicing of the whole airline may offer nothing in the way of service performed on *many occasions* simply because of inadequacy of such detail.

Stress analysis, performance reports and weight data fail to meet adequacy requirements in that footnoting, reference sources and even methods of computation are sketchily presented. As a matter of fact, the proof of their sketchiness need not be restricted to incidents of operator-inability to decipher them; most of us can recall instances where even the manufacturer encountered great difficulty when the engineers responsible for the report preparation resigned some time after the report release.

The need for source referencing and step by step procedure stems of course partly from the fact that the data must be vital, serviceable and readily followed from any point. Revisions which the operator finds necessary to make on the aircraft may necessitate *corresponding* revisions in engineering data. If continuity is provided in the manufacturers' original presentation, these data revisions can be started at the same point as the physical revisions. Where governmental approval is required, as is so frequently the case, the operator's responsibility is appreciably relieved through such thoroughness on the part of the manufacturer.

Special Processes

Another point in "know-how" transmission which should not be omitted by the maker is that of special processes. We presume that the neglect of certain of such procedures is the "on the spot" or practical nature of their development. Concocted by men at the bench from their wealth of experience, these ideas go into the airplane but not into the blueprints. Specific provision to assure their inclusion in maintenance data is an integral part of the manufacturer's responsibility to the operator.

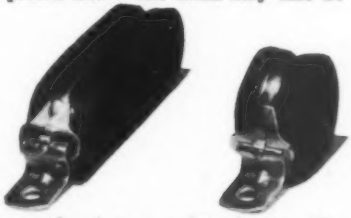
Foremost among the engineering information developments of recent date is the exploded assembly drawing or production illustration. Quite as helpful to the maintainer as to the assemblers, we feel certain that such information will make up an ever larger part of the manufacturing data. Its value is obviously limited in application, but for purposes of visualization or familiarization of "green" hands, it is excellent. As a matter of record, one of the major air transport operators is now initiating preparation of such information on aircraft, flying long before the inception of this art.

The subject of the Maintenance Manual deserves consideration. It is our opinion that this text should be literally what its title purports it to be—a handbook detailing the *maintenance* of the specific aircraft. By the time the operator is studying the Maintenance Manual, he has already purchased the vehicle and any "sales propaganda" emphasis noted in the text may be annoying, especially if the maintenance information sought is lacking. Shorn of adjectived enthusiasm, the manual should embrace consistently, adequately and accurately such data as tie down fitting locations and strengths, door sizes, specific itemized instructions for maintaining all parts, components and systems of the airframe proper, skin thickness tables, simplified units, controls, etc., wire sizes, light bulb sizes, finishes, etc. Descriptive matter alone is not enough; trouble shooting hints, disassembly instructions and the like are the more vital half of the story.

We write the above for the guidance of both established and newcoming manufacturers, for no one has achieved perfection in this respect. Consistency, accuracy or adequacy neglected in or omitted from manufacturing engineering data represent potential built-in delays for the operator. Penciled figures missing or tire flat, the delays may be identical in length.

Electrical Harness Clips Introduced

Two electrical harness clips are the latest additions to the line of support clips and blocks made by Adel Precision Products Corp., Burbank, Cal. The Adel-designed latch permits the clip to be fastened temporarily to a group of wires at the desired location during buildup, and final bolting down may be completed later. The latch may also be considered as a safety factor. The greater the pressure against the cushion, the tighter the clip holds.



Type D-601, left, is designed for holding three or more wires in parallel position. Type D-603, right, will secure large groups of wiring of various sizes. Wires are cushioned in the clip with Adelite synthetic rubber insulating material to prevent chafing. A wide variety of standard and special sizes is available; width of clip and thickness of cushion vary in accordance with overall size.

Incorporations

Delaware—Strickland Aircraft Corp. 100 shares, n.p.v. Principal office, the Corporation Trust Co. Incorporators: R. F. Lewis, L. H. Herman and W. T. Cunningham, Wilmington.

Ohio—Koehler Aircraft Products Co., Dayton. Incorporators: Gustave J., Gordon T. and James J. Koehler.

Texas—Southwestern Airlines, Inc., Houston. Construction. Capital stock, $1,000. Incorporators: T. K. Jackson, Jr., V. W. McLeod, N. L. Cook.

Texas—Victory Flying Service, Inc., Fort Worth. Manufacturing. Capital stock, $1,000. Incorporators: Roy R. Taylor, Gene Royer and Wayne O. Delfeld.

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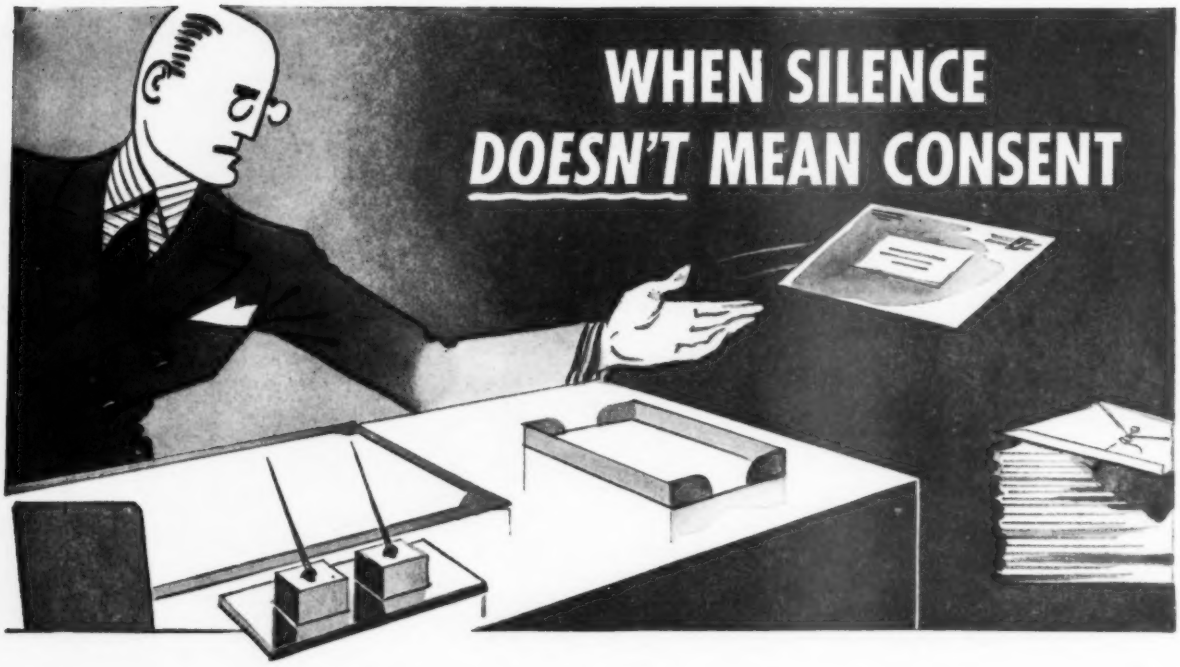

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CAB Actions

(Continued from page 40)

Order No. 2025, Nov. 9, 1942: Authorized American Export Airlines, Inc., to inaugurate service at Bathurst, Gambia, Port of Spain, Trinidad, and Hamilton, Bermuda, on or about Nov. 6, 1942, through the use of commercial airplane bases at those points.

Order No. 2026, Nov. 12, 1942: Fixed rate of compensation for transportation by American Airlines, Inc., at .3 mill per ton of mail between points served by it, ton-mile of mail carried, computed on direct airport-to-airport mileage, to be effective on and after April 1, 1942.

Order No. 2027, Nov. 11, 1942: Rescinded Order No. 1940, issued Sept. 17, 1942, insofar as certain material then affecting national defense was withheld from publication, since such material no longer vitally affects national defense.

Order No. 2028, Nov. 11, 1942: Exempted Pan American Airways, Inc., from such terms of its certificate, issued July 18, 1941, which would prevent it from temporarily operating between Kodiak and Juneau, Alaska, as air transportation between those points is at present inadequate.

Order No. 2036, Nov. 13, 1942: Temporarily exempted American Export Airlines, Inc., from provisions of section 401 (a) of the Act (1938), which would interfere with the line's conducting transportation between Foynes, Irish Free State, and New York, N. Y., westbound via Bermuda, until such flights are again feasible from Foynes to New York via Gambia and Port of Spain.

Order No. 2037, Nov. 14, 1942: Denied petition of Pennsylvania-Central Airlines Corp., to set aside for the duration of the war applications of a group of airlines for certificates, because of insufficient grounds for any or all of the relief requested."

Order No. 2030, Nov. 12, 1942: Granted permission to the Dept. of Justice, Pan American Airways, National Airlines, Inc., TACA, S.A., and Eastern Air Lines, Inc., to intervene in modification of certificate held by Pan American-Grace Airways, Inc.

Army Awards

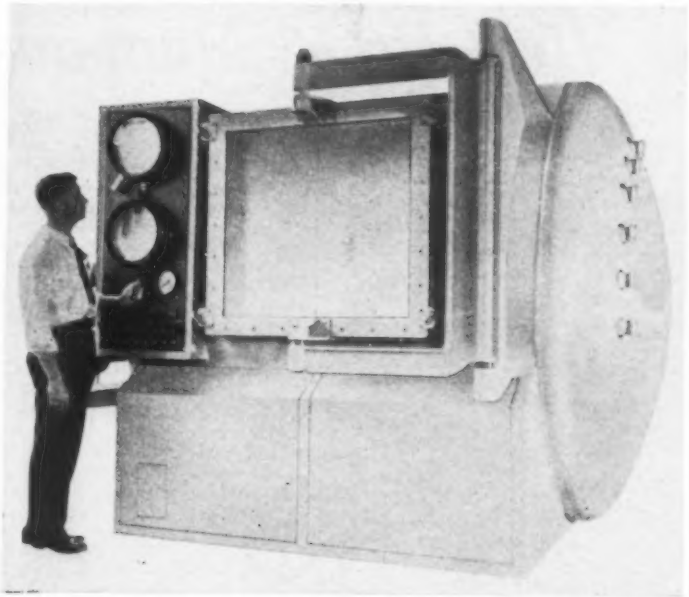
Add Production Awards: War Dept. announces the Army-Navy Production Award will be conferred on these plants: Aircraft Accessories Corp.; Aluminum Company of America (New York); Aluminum Ore Co., (ALCOA); Bailey Electric Co.; Carolina Aluminum Co., (ALCOA); Consolidated Aircraft Corp., Plants 1 and 2; Emerson Electric Manufacturing Co., Turret Division; Grimes Manufacturing Co., Plant 1, and Republic Mining and Manufacturing Co. (ALCOA).

Add Construction: War Dept. has announced conversion of the municipal airport at Vandalia, Ohio, for AAF installation, and has authorized an AAF installation at Great Salt Plains, Okla., which to cost about $3,000,000. Additional authorization has been made for AAF installation at Greensboro, N C., to cost in excess of $2,000,000.

Serves Cincinnati

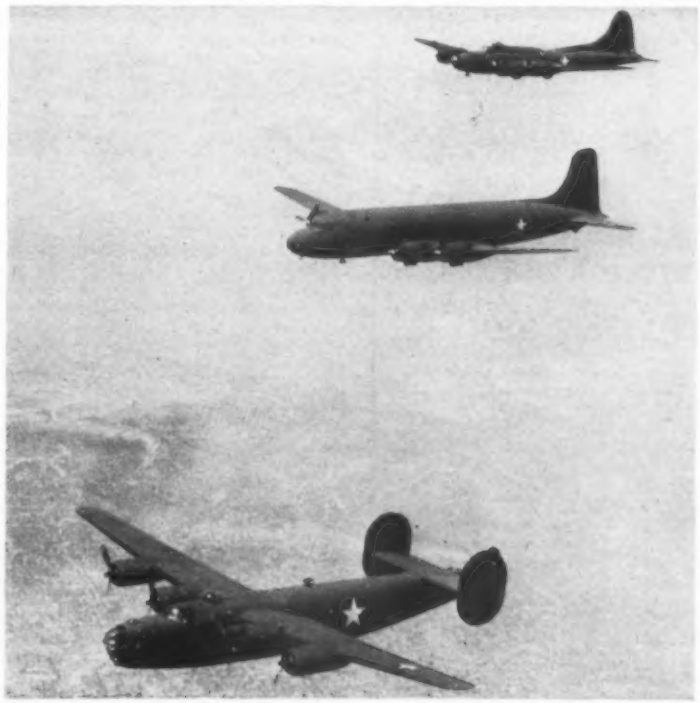
Cincinnati is now a stop on TWA's coast-to-coast route, the change having been made with CAB approval. Formerly, TWA's main route passed north of the city.

Stratosphere Chamber Tests Parts



To test mechanical parts of aircraft as well as radio parts for high altitude work, the Kold-Hold Mfg. Co. of Lansing, Mich., has developed and built a Stratosphere Chamber that operates from ±200° F. to —75° F., with an internal pressure variation from ambient at the unit's location to 3" Hg absolute. Both the pressure and temperature variations are controllable throughout the range. The first such unit was designed and built for Philco Corp., Philadelphia.

Features and construction details are: interior volume of 245 cu ft.; "Freon-12" refrigerant; humidity control 25% to 95% relative to all temperatures above plus 40° F. or at fixed bottom of +32° F.; strip heaters so arranged that forced convection provides circulation; three indicating recorders provide continuous record of temperature, pressure and humidity.



Big Three: This unusual photo, released by Douglas Aircraft, shows, from top to bottom, a Boeing B-17 Flying Fortress, a Douglas C-54 Skymaster combat transport, and a Consolidated B-24 Liberator. Douglas states that it is the only firm building all three types.

CAA to Train Glider Co-Pilots for the Marines

Co-pilots for large troop and cargo-carrying gliders operated by the Marine Corps will be trained by the CAA, Charles I. Stanton, Administrator, announced Nov. 10.

On Nov. 15 at three schools, 60 Marines started both the elementary and secondary courses offered by the CAA at the three CPT training centers. A month later, 60 others will start training at three other centers, and, at eight week intervals, similar classes will be started.

Upon completion of the 16 weeks' training, graduates of the course will be assigned as co-pilots of large gliders with rank as Staff Sergeants, and opportunity for commissions. Their courses with the CAA will consist of 480 hours of ground school training, nearly 100 hours of flight training and instruction in specialized maneuvers in glider piloting.

Enlisted Marines, Private First Class or better, may apply for the training to the Commandant, through their commanding officers. They must have had a minimum of eight months' active service, be under 32 years of age and "physically and temperamentally fit" as glider pilots.

The following flight contractors and associated educational institutions started the Nov. 15 classes: Henson Flying Service, Hagerstown, Md., and the Mercersburg Academy, Mercersburg, Pa.; Ong Aircraft Co., and the Sherman County Community High School, Goodland, Kan.; Olympia Air Transport Co., Sunnyside, Wash., and the Sunnyside High School.

On Dec. 15, the Alabama Air Service, and the Alabama Polytechnic Institute, Auburn, Ala., will begin. Also, the Morey Airplane Co., Middletown, Wis., and the University of Wisconsin at Madison, as well as the Bluefoot Flying Service, Lancaster, Tex., and the North Texas Agricultural College, Arlington, Tex., will start at that time.

Airlines Train Military Flyers

Military flyers are now being admitted to the pilot's compartments of aircraft flown by the commercial airlines for the purpose of obtaining advanced experience in multi-engine aircraft and cross-country procedures, the CAB announced Nov. 17.

The new CAB regulation permitting this practice applies only the skilled, qualified pilots in the armed forces assigned to commercial aircraft used in scheduled or non-scheduled flight providing that a regularly-assigned crew, holding proper certificates and ratings, is aboard, CAB emphasized.

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Industry Wage Stabilization Plan Held Up by Manpower Confusio

By CONRAD CAMPBELL

THE problem of wage stabilization throughout the aircraft industry seemingly remains as far from practical solution as ever, leading some observers to doubt whether there is any real intent upon the part of Washington to settle the matter at an early date.

Testimony taken at the October conference in Los Angeles featuring the wage demands of West Coast workers, the proposals of management, and rebuttals from both sides, have now been filed with the National War Labor Board. When the conference ended, a promise was made that the Board would take final action before Jan. 1. That, of course, may still be possible, but up to the time of going to press the Board had not set a hearing date which, necessarily, must be arranged several weeks in advance.

In the meantime, formal certifications of "disputes" listing each of the West Coast companies and the labor organizations representing their employes, have been made by Secretary Perkins. The stage is set, but there seems to be little indication that the curtain will go up on time.

The issues remain virtually unchanged. Management has expressed its willingness to grant specified increases in certain job classifications but, with the exception of Boeing, does not agree to the principle of a general wage increase. On the other hand, the labor organizations have given publicity to the union demands, which include:

(1) "Adjustment of wages to remove the gross inequalities between aircraft and other war industries in California and the aircraft industry in other regions.

(2) "Elimination of the complex and unfair system of job classifications and wages still prevailing in the California aircraft industry.

(3) "Establishment of the California aircraft industry in line with other war work by granting two weeks vacation with pay, 10c bonus for second shift, 15c for third shift, and a bonus to workers who join the armed forces.

(4) "Pay for overtime and holidays consistent with President Roosevelt's executive order and the policy of UAW-CIO.

15% Refuse

"More than 15% of the workers referred to aircraft by the United States Employment Service refuse the jobs when they find out what the wages are," Richard T. Frankensteen, labor leader claimed. Five per cent of the workers quit every month. This is an extremely high rate in an industry where a practice of industry-wide job freezing has been in effect for months. These workers do not go from one aircraft plant to another, they go into other war industries where wages are much higher. In August, the California shipyard workers averaged $58.14 for 43.5 hours while the aircraft workers received $44.95 for 46.6 hours. By going into the shipyards the aircraft workers could raise their wages more than 37c an hour."

These are the expressed views of UAW-CIO, but it is known that AFL locals, representing workers in many of the plants, have made similar demands and accusations.

The question of matching wage scales with those in the area for shipbuilding and other war work is not a vital point of issue, for the value of keeping workers from going to the other industries is only too well recognized. The manner in which this can be done in fairness to management and workers, without adding to the dangers of another wage spiral, is the real problem so far as that particular phase of the subject is concerned. While the Office of Economic Stabilization headed by James F. Byrnes is supposed to control the situation and prevent future spirals, the unions' organization literature is already advertising that "unorganized labor's wages are frozen" while organized labor wage rates are not.

A bigger problem lies in coordination of wage rates in Califo with those of aircraft worker other sections of the country. leads back to the workers' ori demands for rates at the W Run level or better. Paul R. Pu presiding officer at the confere has emphasized that the governm favors regional rates, but whe employes will remain satisfied w that arrangement is doubtful. any event, an important section the union demands is for reduc of "inequalities which exist betw California aircraft and the indu in other regions."

In a recent report the Departm of Labor presented a survey of e ploye wage rates in midconti airframe plants and a month be gave one featuring rates in Mi gan and Buffalo, N. Y. These lowed earlier reports for the and West Coasts. As the Michig Buffalo report stated: "A clear derstanding of the nature and tent of regional wage differen is of considerable importance planning a sound stabilization p gram.

"Earnings of workers in airfr plants in the Michigan-Buffalo in May 1942 were substanti higher than in segments of the dustry previously studied by Bureau of Labor Statistics. W paid by old line aircraft establi ments in Buffalo and by the c verted plants in Michigan were c siderably above the East Coast West Coast averages."

Lists Averages

As a part of the report on n continent rates, the Labor Dep ment explained: "The averages May 1942 were as follows: midc tinent 79.6c; southern Califor 82.9c; East Coast 84.1c; Buffalo 9 and Michigan $1.093." Such avera vary from month to month due the status of workers. For insta when there are a good many ginners, the average rate decli However, even with such qualifi tions and with increases in r since the May checkup, the Bur of Labor Statistics considers that ratio remains fairly true.

The influx of women workers aircraft plants in all sections may expected to create another is for consideration and possible mo fication of rate demands. One pl of the labor platform has been equal wage rates for men women. However, as a whole, wom have not been as ardent membe of union organizations and in pla where drives are now being co ducted a smaller percentage women workers have enrolled.

Looked at from a Washing viewpoint, the whole question a pears to be wrapped up in the co plexities of the manpower probl as a whole. It is possible that National War Labor Board w let the subject ride until issuance a further executive order from President provides a basis for its d cision.

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√ ELEMENTS TWISTED AT 90°

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Note twisted element

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Stinson Builds 2 New Planes for U. S. Army and Britis

Two new airplanes, both already in production, were announced at an employes' rally of Vultee Aircraft's Stinson division in Wayne, Mich., on Nov. 12, according to release.

At the rally, held between shifts at the plant, one of the planes was christened the "Sentinel" by Mrs. Eddie Stinson, and designated the L-5; the other the AT-19, was christened the "Reliant" by Mrs. Richard M. Smeeton, wife of Lieut. Commander Smeeton, Assistant Naval Attache for Air at the British Embassy in Washington.

Described variously as an observation balloon and a "flying jeep," the L-5 is said to be "a small, rugged, highly maneuverable plane, designed to be the 'eyes upstairs' of the artillery, tank corps, cavalry and infantry." It can hover, allow the pilot to make and transmit observations, and is designed to "go wherever the ground troops go." A very practical feature is its low gasoline consumption, and the fact that it requires little service work. Its wide speed range facilitates maneuverability in taking observations. Speed is said to vary "from an unusually high speed for this type of plane to a hovering speed of less than 45 miles an hour."

Fuselage of the L-5 is made of welded steel tubing, wings and tail surfaces of wood. Wing span is 34 feet, length 24 feet, and weight 2,100 lbs. The plane's Lycoming engine is a 190 horsepower horizontally opposed type.

Assigned to the British under lend-lease, the AT-19, on the other hand, "will be used for teachi British navy flyers aerial navi tion." As Stinson's release descri it, the plane "is essentially t peace-time Stinson 'Reliant' dressed in war paint." Des changes cannot be divulged in f

It is a high gulled wing mon plane with a seating capacity f four, and has been fitted out w "a multiplicity of specialized instr ments used in teaching navigation It is planned to use the e especially for teaching pilots t technique of navigating when fly long distances from a carrier wi out directional beams as guides.

Equipped with a constant spe propeller, the AT-19 is powered a 290 horsepower Lycoming ra engine. It has a wing span of feet, is 30 feet long, and wei (gross) 4,000 lbs.

Fair Employment Committee Plans To 'Get Toug

The President's Committee Fair Employment Practice, now u der War Manpower Commission, h gone on record that it plans to " tough" with companies which not hire what it considers a sufficie number of workers in the "minori groups.

Two letters of protest have be sent one West Coast aircraft com pany for ordering employes to a near at the plant on a day on whi their religion forbids them to wo according to the Committee.

The Stinson "Sentinel" for the U. S. Army

The Stinson "Reliant" for the British

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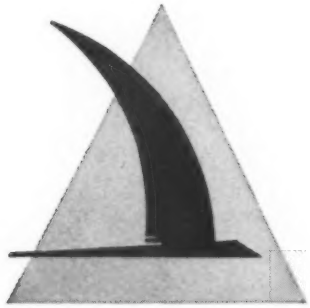

Two engineering advancements that will speed U.S. mastery of the skies

WHAT FOLLOWS is submitted by the men who comprise the "Northrop group"... men devoting every workable hour to hurrying the design and construction of U. S. warplanes ...men who claim no special credit for our country's progress toward air victory.

The U.S. Air Program is rolling. Here are two new engineering techniques that are speeding U.S. progress in developing new designs. And converting these designs into finished fighting planes *faster.*

First, may we tell you about "*Heliarc*" *welding?* Telling about this process cannot give aid to the enemy because it depends on the strange gas *Helium*—of which the U.S.A. has 98% of the world's supply.

Before this new development, natural aircraft metals such as magnesium and stainless steel were difficult to fabricate into aircraft structures—because it was not practical by ordinary methods to arc-weld two pieces of such metal together.

Engineers at Northrop, some months ago, discovered that *these metals under a Helium jet become weldable.* Northrop has turned the process over to the industry. It removes one hurdle on the road to the all-welded airplane.

The second new technique concerns a method of *faster tooling* for production of new-design U.S. airplanes. If we can *tool faster* than the Axis we can get new improved U.S. fighters and bombers into the air while the enemy's new designs are still unfinished in his plants.

And WE ARE *tooling faster. For example, from the Northrop group has come a new technique of template making that* SAVES THOUSANDS OF MAN HOURS *in tooling for a typical new U. S. design. This process saves five weeks in getting a new U.S. fighter onto the battlefront. As with Helium welding, this process has been turned over to the entire aircraft industry.*

These are merely examples. Additional new processes and new devices are coming from Northrop and also from other aircraft companies. And every major development is made available to all U.S. airplane builders. It is one reason the U.S. airplane-building program is getting places today.

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METEOROLOGY for SHIP and AIRCRAFT OPERATION

by PETER E. KRAGHT, Sr. Meteorologist, American Airlines

Written in straightforward language, this book handles winds and weather with full emphasis on problems of plane and ship operation. Beginning with basic facts about the air, the author continues with horizontal and vertical winds, and their accompanying weather, and a long section on fog and other low clouds. Instead of formulae, 21 practical, easy-to-read tables are presented. Added features are glossaries of winds and technical terms, and an 8-page photographic section of cloud forms.

Especially outstanding are the 155 illustrations prepared by the author which explain and clarify nearly every page of text.

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by CAPTAIN DAVID POLOWE

This book presents the 5 main problems of navigation in careful detail. The complete Dreisonstok (H.O. 208) Tables are included, and all necessary pages from the Nautical Almanac, so that no reference books are needed. It explains the use of the American Air Almanac, devotes chapters to dead reckoning, piloting, examination questions, etc.

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Noorduyn Heads Canadian AITA

R. B. C. Noorduyn, vice-president and general manager of Noorduyn Aviation, Ltd., Montreal, Que., was elected president of the Air Industries and Transport Association of Canada at its annual meeting in Montreal Nov. 2, according to release from Ottawa.

During the meeting, officials announced the Association's new name as above. It was formerly the Air Transport Association of Canada. Since membership has always included both operators and constructors, change in name was made "in order that it would be more accurately descriptive of the interests and activities of the 75 member firms."

These firms include all of the 15 independent aircraft constructors in Canada; sixteen air transport operators; operators of air observer schools; repair and overhaul companies, and manufacturers of accessories, petroleum products and supplies.

In the officer elections, Noorduyn succeeded James Young, whose term as director of the Association had expired. Other officers elected were C. H. "Punch" Dickins, general manager of Canadian Pacific Air Lines Ltd., vice-president; W. F. English, ass't vice-president Trans-Canada Air Lines, honorary secretary, and M. E. Ashton, president, Wings Ltd., honorary treasurer. W. B. Burchall, Ottawa, was reappointed Executive Secretary.

Other directors of the organization were listed as J. N. Baird, British Aeroplane Engines, Ltd.; W. N. Deisher, Fleet Aircraft, Ltd.; P. C. Garratt, De Havilland Aircraft of Canada Ltd.; Grant MacDonald, MacDonald Bros. Aircraft Ltd., and C. R. Troup, Canadian Pacific Air Lines Ltd.

In the course of the meeting, D. C. Coleman, president of the Canadian Pacific Railway, told members that "the post war . . . air transport industry would have to offer something else besides speed to win and hold traffic . . . you will have to be prepared to be judged as against other forms of transport on the basis of safety, cost, comfort and convenience."

Mfg. Digest

CESSNA AIRCRAFT Co., Wichita, Kan., reports that between 30 and 35% of its employes are women, and that the ratio will soon approach 50-50. Currently, it adds, 65% of workers hired are women.

JOWEIN, INC. METAL PRODUCTS, Jamaica, N. Y. announces its aircraft parts facilities have been increased 50% by the acquisition of an additional plant in Jamaica.

BETCHEL - McCONE - PARSONS Corp., Los Angeles, Cal., has been authorized by Defense Plant Corp. to construct and equip a plant in Alabama, to cost in excess of $12,500,000, according to press reports. It is understood this p will do modification work.

UNITED AIRCRAFT Corp., Hartford, Conn., states its "emp ment rate for women has incre by leaps and bounds and is tinuing its upsurge." Women said to have totaled 72% of employes placed in a recent we the Pratt and Whitney Aircraft sion. They operate "machine all kinds."

Woodhead Na Vultee Presi

Harry Woodhead, presi Consolidated Aircraft Cor Diego, Cal., was elected pre Vult craft, i tee Fl at me Vult rectors 12, ac to an ment. head Richa Milla signed.

At t time, Laddon, vice president and manager of Consolida elected vice president of Both Woodhead and Ladd continue in their present c at Consolidated, it is unders addition to their new respon at Vultee.

When Vultee acquired w control of Consolidated, late Woodhead, who was chair Vultee, became president o solidated. G. M. Williams chairman of Vultee.

Brewster to Double Present Capacity Johnsville Divi

A new building progra signed to double . . . capacity" of its Johnsville has been announced by Aeronautical Corp., Long City, N. Y.

In this plant final assembl completed on "Buccaneer' and muda" dive bombers for t Navy and Great Britain. Th Navy F3A fighter known 'Battler' will be finished and within the next few months," same plant, Brewster adds.

To complement the space u dive bomber assembly, a n sembly floor for fighters is constructed, in a separate bu and here the fighter program go through its "final stages." A hangar, to house about 100 p is being built on the flying Here Brewster plans to co experimental work, and to mak modifications necessary on the bomber and fighter programs.

When full production has bee complished at this enlarged Brewster expects to have women employes, who will re considerable training in "produ operations".

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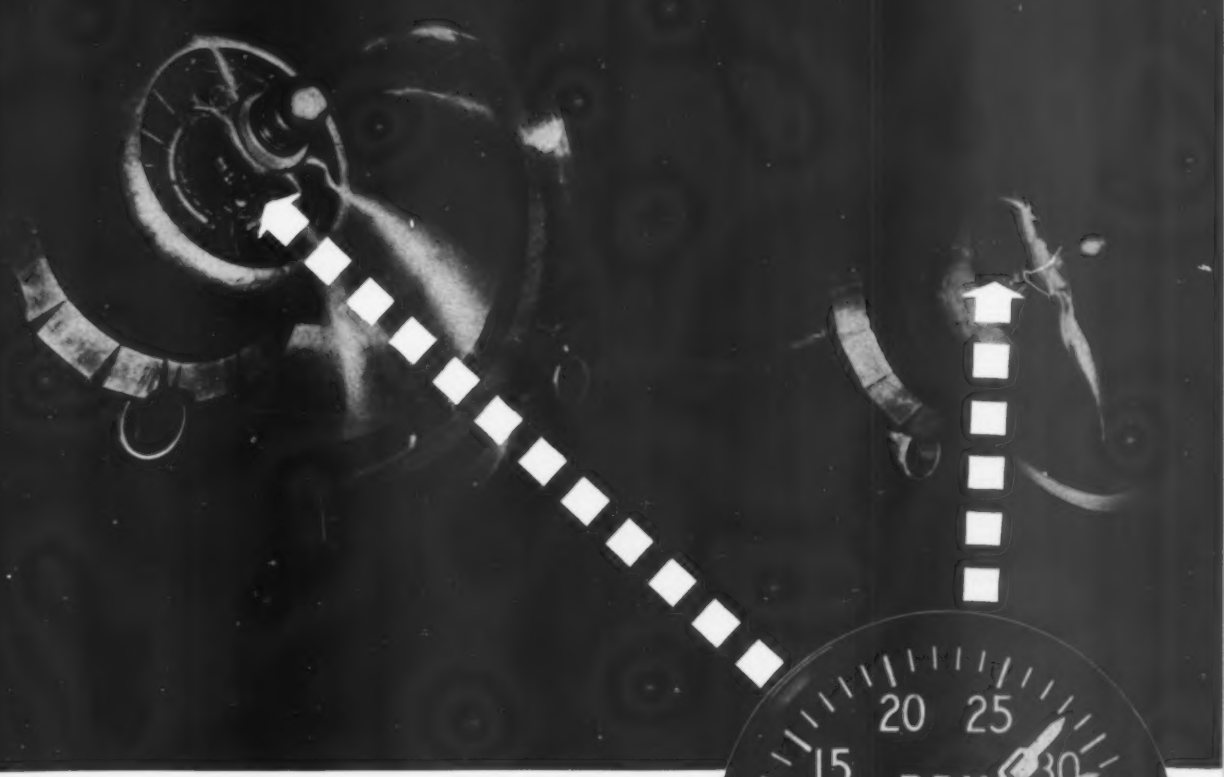
ONE INSTRUMENT THAT DOES THE WORK OF THREE



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Take a look at the dial of this new Kollsman development—two tachometers and synchroscope, normally observed on three dials—now combined in a single instrument for rapid, accurate reading.

Note particularly the synchroscope sub-dial. Clockwise rotation indicates right engine too fast . . . counter-clockwise, too slow. Here is synchronization simplified to the *nth* degree.

Further than this, the new Combination Dual Tachometer and Synchroscope makes an important contribution to panel design by saving precious space and weight.

Easier to install, simple to service, parts interchangeable, ranges up to 4,500 R.P.M.; in every detail, this new instrument testifies to the intense research, engineering skill and master craftsmanship which goes into every Kollsman Instrument for aircraft of the United Nations.

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National Steel's Plane Plant Expropriated by Canadian Government

Ownership and management of the aircraft plant of the National Steel Car Corp., Ltd., Malton, has been taken over by the Canadian Government, according to the Munitions and Supply Dept., Ottawa, Ont.

Government is taking over the plant, which is engaged in the manufacture, assembly and overhaul of aircraft and aircraft parts, and particularly Lancaster bombers, "in order to expedite operations and to maintain a community of interest and cooperation between the plant management, the Munitions and Supply Department, and the designers and builders of the Lancaster bomber in Britain."

Henceforth, the plant will be operated by Victory Aircraft, Ltd., owned by the Crown and responsible to the Munitions and Supply Minister. President of the new firm is J. P. Bickell, Toronto. Operations will not be interrupted.

NORTH AMERICAN AVIATION, Inc., Inglewood, Cal., discloses it now has "scores" of physically handicapped men and women employed in its California, Kansas and Texas plants. They are reported to be working in such varied occupations as machine operators, painters, inspectors and storeroom clerks.

WILKENING MANUFACTURING Co., Philadelphia, Pa., reports it has under construction in Pennsylvania a new plant for making Army aircraft piston rings.

Plastics Award: Large transparent sheets of methyl methacrylate plastic molded here to make the nose on an American bomber won the John Wesley Hyatt Award for Dr. Donald S. Frederick (right) as the outstanding contribution to the plastics industry for 1941. Dr. Frederick, of Rohm and Haas, received a gold medal and $1,000.

Manufacturing Personnel

E. R. Pierce is the new sales manager for aviation glass at the Owens-Ford Glass Co., Toledo, O. **J. M. Johns**, formerly in charge aircraft glass sales, has become assistant to George P. MacNich vice president in charge of sales for the entire organization.

John L. Schmeller, formerly executive vice president, has been president of the National Bronze and Aluminum Foundry Co., Cl O. **W. F. Muth** was elected vice president and secretary, **George N.** vice president and **George N. Hilliard**, comptroller.

Robert C. Mathewson, formerly with the Buffalo works of the We ton Pump and Machinery Corp., has been appointed assistant of American Bosch Corp.'s branch office at Chicago, Ill. He is in of field engineering.

Elmer E. Stuart has been promoted from auditor to assistant at Thompson Products, Inc., Cleveland, O.

Dan C. Hungerford, formerly vice-president and a director Elastic Stop Nut Corp., Union, N. J., has been elected president eral manager of Aircraft Parts Development Corp., Summit, N.

Charles W. Morris, formerly engaged in the installation of supe ing equipment in the Aviation Division of General Electric Co. nectady, N. Y., has joined the engineering staff of AiResearch facturing Co., Inglewood, Cal., as installation Engineer in the hi tude cabin equipment division.

Albert Bradley and **O. E. Hunt** have been elected executive vice dents of General Motors Corporation, and **E. F. Johnson**, vice-p in charge of an Ohio plant and of the Eastern Aircraft Divisions was elected a member of the War Administration Committee.

W. Mel Wilson has been appointed vice-president in charge of All American Aircraft Products, Inc., Long Beach, Cal.

Thompson Aircra Reports $495,88

A rapid increase in net sal $8,704,656.91 at six month June 30, 1942, to $18,666,2 Sept. 30, 1942, is revealed by son Aircraft Products Co., O. in statement of profit These figures include sales iated companies.

Net profit however, mov from $355,441.26 at June 30; 889.31 at Sept. 30. This narro gin was caused by deduct $1,199,000 estimated provis federal income taxes, and 000 provision for post war ments and contingencies. provision at June 30 amou only $54,622.45.

At Sept. 30, Thompson had $2,013,012.27 operating compared with $488,192.85 at J

DPC Authorizations

Defense Plant Corp., RFC sidiary, has authorized execut a contract with Erie Resistor Erie, Pa., which will make p construction of plant facili Pennsylvania, to cost in exc $275,000. Also provided in a izations were increases of DPC tracts with Chrysler Corp., D Mich, in excess of $75,000, and Ford Motor Co., Dearborn, Mi excess of $250,000.

Other authorizations which has announced include increa contracts with Curtiss-Wright New York, N. Y. and subsid For additional plant facilit Pennsylvania, an increase in c of $275,000 was granted, bring $7,750,000 total commitment. subsidiary, Wright Aeron Corp., received an increase o 500,000 for additional plant fa in New Jersey.

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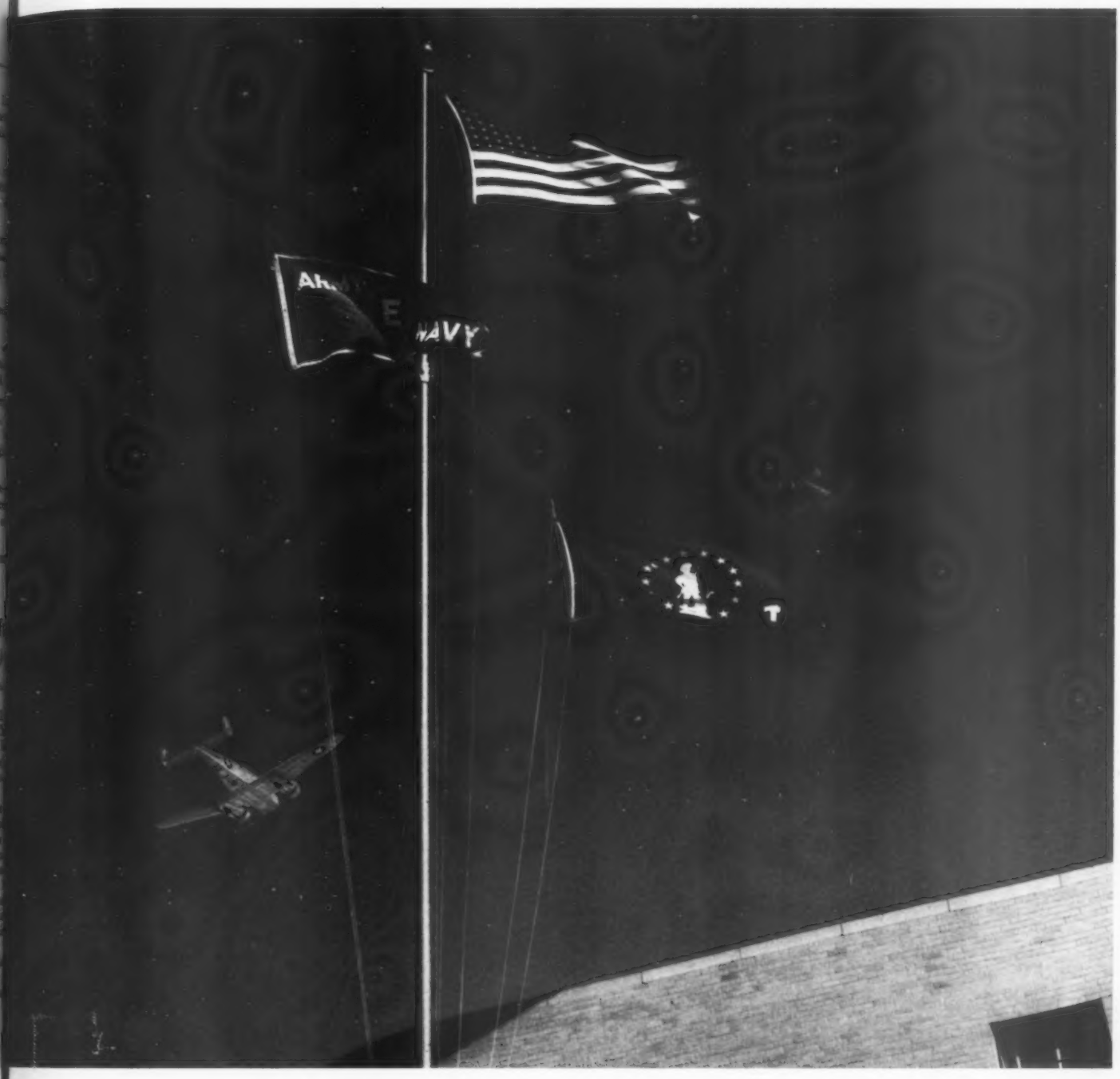

Symbols

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BEECHCRAFTS ARE DOING THEIR PART — *WICHITA, KANSAS, U.S.A.*

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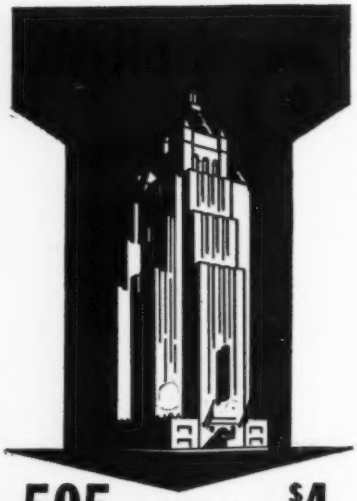

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On the Labor Front

ALUMINUM COMPANY OF AMERICA, INC.
NLRB has dismissed a petition by AFL and a request by CIO for a ... of recent election at Lafayette, Ind. plant.

CHRYSLER CORP., DETROIT, MICH.
Company has proposed to UAW-CIO that present labor contract be ... for duration. Union offers 99 amendments including closed shop and ... concessions. Robert W. Conder, director of labor relations, advised union "this is not the time to divert attenion from the pressing task of maki... supplies," added that if amendments are adopted, production would be ... down.

CURTISS-WRIGHT CORP.
Propeller Division has signed a two year labor contract with IAM... Agreement covers hourly workers at Caldwell and Clifton, N. J., plus certain, undisclosed wage increases. Additional wage questions have referred to NWLB.

FAIRCHILD AIRCRAFT DIVISION, Hagerstown, Md.
Hearing in the wage case now before NWLB has been recessed "for a ... or two" in order to compare findings of panel with scale paid individu... classifications in other Eastern aircraft plants.

GOODYEAR AIRCRAFT CORP., Akron, O.
Company is directed by NLRB to hold election of wood, metal and ... pattern makers, including model makers, to vote for Pattern Makers' ... of North America-AFL or UAW-CIO, or neither.

GOODYEAR TIRE & RUBBER CO., Akron, O.
Dispute with United Rubber Workers-CIO over wages and union securi... been certified to NWLB.

HAYES MANUFACTURING CO., Grand Rapids, Mich.
Employes have voted to continue UAW-CIO as exclusive bargaining age...

NASH-KELVINATOR CORP., Detroit, Mich.
A work holiday was called in a number of area plants, including ... by Mechanics Educational Society in protest of alleged interference wi... union's organizational activities by CIO. Ended after several days ... intervention of AAF and NWLB. Later, two Nash aircraft plants clos... two days over dismissal of foremen. Dispute was certified to NWLB.

RADIO RECEPTOR CO., Inc., New York City
Company is directed by NLRB to hold election of production and maint... employes, excluding supervisory workers, engineers, clerical workers and ... nicians, to vote for UER&M-CIO, or International Brotherhood of Elec... Workers-AFL, or neither.

SEALED POWER CORP., Muskegon, Mich.
Employes voted in NLRB election for UAW-CIO representation.

UNITED AIRCRAFT CORP., East Hartford, Conn.
Company has agreed with United States Employment Service to hire ... collar workers on 3 p. m. to midnight shift "to relieve acute shortages of ... and housing." Office workers and housewives will be trained to take ... mechanical jobs and company suggested that married couples might ... and each work half a shift.

WESTERN ELECTRIC CO., Kearney, N. J.
Dispute concerning wages, living allowances and seniority, by equipme... stallation workers in Atlanta, Chicago, Denver, Omaha, New York, Philade... Washington, Cleveland, Albany, Detroit, Newark, San Francisco, and ... Louis, is certified to NWLB.

YALE & TOWNE MANUFACTURING CO., Stamford, Conn.
NLRB has certified UAW-CIO as bargaining representative as result of el... held October 29.

Financial Briefs

GENERAL MOTORS Corp., New York, N. Y., announces its directors, on Nov. 2 declared dividend of 50c on each share of common stock, payable Dec. 12 to stockholders of record Nov. 12. Quarterly dividend of $1.25 per share was also declared on the $5 preferred stock, payable Feb. 1, 1943, to stockholders of record Jan. 11, 1943.

BRIGGS MANUFACTURING Co., Detroit, Mich., discloses it and subsidiary companies for the nine months ended Sept. 30, 1942, had net profit of $3,043,962, equal to $1.56 each on 1,947,700 shares of common stock. This compares with net profit of $4,751,949, or $2.40 a share in the same period last year. In the 1942 period, $2,393,392 was provided for depreciation, reserve and federal income taxes, and in 1941, $2,445,484 was so allowed.

WRIGHT AERONAUTICAL Corp., division of Curtiss-Wright Corp., New York, N. Y., has declared divid... $8, payable Dec. 14 to stock of ... Nov. 27.

CURTISS-WRIGHT Corp., New ... N. Y., directors have ordered ... of $1, common, payable Dec. ... stock of record Nov. 27.

Classified Ads

NOTICE — OPERATORS — Have ... desirable locations in a Midwe... State for reliable airport oper... Must have equipment and experi... Ordinary operating cash required. ... record must be good. Write, giving ... information in first letter. ... BOX 352, AMERICAN AVIA... American Building, Washington, ...

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NECESSITY has truly been called the Mother of Invention. The necessities of today's war demands call for newer, better materials—and for substitutes capable of fulfilling the functions of materials and metals urgently needed elsewhere in war production.

That's why plastics which *can replace metal,* are becoming increasingly important to the aircraft industry . . . to our country's war effort. Plastics possess certain inherent advantages. They make possible more simplified structures, smoother, cleaner surfaces, can be more easily fabricated. And aircraft assemblies designed for and built from plastics, have strengths equal to aluminum alloy structures of the same weight.

In the development and application of plastics to aircraft design, McDonnell has engaged in extensive research in cooperation with the Army, Navy, and Forest Products Laboratory, Forest Service, U. S. Dept. of Agriculture. As a result, a technique has been evolved which *successfully utilizes paper* in the production of strong, tough plastics.

We now are in a position to give consideration to the problems of other aircraft manufacturers interested in the *possibilities* of *plastics* in the *production* of ailerons, air ducts, control tabs, doors of all types, elevators, engine baffles, engine nacelle cowlings, engine ring cowlings, fairing, fin tips, flooring, gun blast shields, seats, steps, stabilizer tips, wheel fairings, wheel wells, wing flaps, wing trailing panels. Please address your inquiries to: *Manager, Plastics Division.*

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